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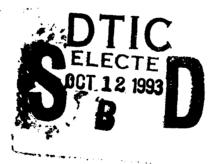


# The Development of an Automated Armor Data Base - Phase 1

Robert C. Grubinskas and Richard J. Squillacioti

ARL-TR-218

September 1993



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Warren, Michigan 48397-5000

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## REPORT DOCUMENTATION PAGE

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## **Objective**

The objective of this portion of the Improved High Hard Armor Steel Program is to establish a database that is automated and capable of being remotely linked to the Combat Systems Test Activity's (CSTA) host computer system to access on-line ballistic test results and supporting data. Accordingly, the results of all ballistic tests performed at CSTA would then be readily accessible. The database will be created and used initially as a repository for MIL-A-46100 Steel Armor Ballistic Data. The database design will be sufficiently generic so as to be able to accommodate all armor materials (Steel, Aluminum, Titanium, etc.).

#### Introduction

This Technical Report (TR) is one of three (3) TR's to be generated as subtasks under the "Development of an Improved High Hard Armor Steel (MIL-A-46100)" project funded by the PM, Survivability (TACOM). These three subtasks will be subsequently summarized in one overall report. This TR is the first of a set which explains the development of the database but the analysis of the generated data will be published in the overall report under the same title as the project.

### **Discussion**

An Armor Steel Database has been established to function as a data repository for MIL-A-46100 (reference 1) steel ballistically tested by the U.S. Army Combat Systems Test Activity (CSTA) and to improve the accessibility and ease of analysis of the ballistic data. The ballistic testing of high hardness armor plate in accordance with MIL-A-46100 requires armor plates whose thicknesses fall within pre-specified thickness ranges to be ballistically tested using thickness-range-dependent test projectiles and target obliquities. Table 1 lists the required ballistic projectiles with respect to plate thickness. Accordingly, the Armor Database has been designed to reflect this dependence of armor plate thickness range upon a specific test projectile by defining its key index field to be essentially test projectile dependent.

TABLE 1

TABLE OF REQU	IL-A-46100 REVISIONS ( JIRED ARMOR PLATE THION NCTION OF PROJECTILE	CKNESS RANGES
PROJECTILE [CALIBER]	OBLIQUITY [DEGREES]	THICKNESS RANGE [INCHES]
CAL 0.30 AP M2	30	0.125-0.315
CAL 0.50 AP M2	30	0.316-0.590
14.5 MM API B32	30	0.591-0.765
14.5 MM API BS41	30	0.766-1.065
20 MM API-T M602	0	1.066-2.100

A modular approach was employed in the development of the database structure. The database structure is comprised of the following six (6) major database modules:

- 1. ARL/MD ID & MIL Spec Attributes
- 2. Plate Production History
- 3. Materials Properties
- 4. Ballistic Performance
- 5. Chemical Compositions
- 6. Target Damage Assessments

Each of these major database modules are, in turn, further subdivided into their respective database structural elements. In the current context, the term database element is used synonymously with the database term database field. The integration of these database structural elements into their respective database modules to form a complete database structure is shown in Table 2. A complete database structure exists for each of the five (5) test projectiles listed in Table 1. The database elements associated with the first five database modules in Table 2 represent fifty-three (53) database fields. These elements are currently available from the TAC forms (MIL-STD-367, Format I) supplied by industry when requesting ballistic testing.

TABLE 2

	ARMOR DATABASE
DATABASE STRUCT	URAL ELEMENTS
1 ARL/MD ID & MIL SPEC ATTRIBUTES	4 BALLISTIC PERFORMANCE
* ARL/MD ID ATTRIBUTES  ** PROJECTILE DIAMETER  ** PROJECTILE TYPE  ** PROJECTILE SIZE UNIT  OF MEASUREMENT  * MIL SPEC NUMBER  * MIL SPEC REVISION  * MIL SPEC AMENDMENT  * MIL SPEC MATERIALS CLASS  2 PLATE PRODUCTION HISTORY	* TEST PURPOSE  * SAMPLE PRIMARY/RETEST  * FIRING RECORD  * FIRING DATE  * FAIL FIRING RECORD  * TEST (SHOT AGGREGATE)  * PROJECTILE  * OBLIQUITY  * PLATE THICKNESS  * REQUIRED V <sub>50</sub> VELOCITY
* PRODUCER  * FABRICATOR  * HEAT TREATER  * HEAT NUMBER  * LOT NUMBER	* ACTUAL V <sub>50</sub> VELOCITY  * PASS/FAIL  * PASS/FAIL VELOCITY DIFF  5 CHEMICAL COMPOSITIONS  *C *MN *SI *NI *CR
* PRODUCER PLATE NUMBER	*MO *V *B *CU *P
3 MATERIALS PROPERTIES  * PLATE THICKNESS  * PLATE HARDNESS	*S *ZR *AL *TI *SB *AS *SN *PB *N *O *H *CB *CO
* DI INDEX (HARDENABILITY)  * CHARPY LT  * CHARPY TL  * CHARPY HARDNESS  * TEMPERATURE (AUSTENITIZING)	* SHOT VELOCITY  * SHOT RESULT  * SHOT BULGE  * SHOT SPALLING  * SHOT CRACKING  * SHOT PLUGGING

The sixth module, Target Damage Assessments, contains seven (7) database fields which are associated with each constituent test shot of the test shot aggregate required to determine the V50 protection ballistic limit, BL(P), afforded by the armor plate Module 6 is capable of accommodating target damage being tested. assessment data for up to twenty-eight (28) individual test shots for a total of one hundred ninety-six (196) [28x7] database fields. Thus, a six (6) module database structure comprising two hundred forty-nine (249) database fields exists for each of the five (5) test projectiles. Module 6 represents a newly ARL/MD initiated enlargement of the data acquisition process by the U.S. Army Combat Systems Test Activity. The data associated with Module 6 will not be included in this TR because it is not currently recorded by Once CSTA completes its effort to automate their ballistic ranges all this information will be available for analysis. field attributes of Module 6 are shown in Table 3.

TABLE 3

TARGE	-46100 STEEL ARMOR DAT ET DAMAGE ASSESSMENT FI FOR EACH SHOT VELOCITY	
FIELD NAME	FIELD UNITS	FIELD ENTRY
SHOT VELOCITY	[FT/SEC]	VELOCITY VALUE
SHOT RESULT	[PARTIAL/COMPLETE]	'P' OR 'C'
SHOT BULGE	[YES/NO]	'Y' OR 'N'
SHOT SPALLING	[YES/NO]	'Y' OR 'N'
SHOT CRACKING	[YES/NO]	'Y' OR 'N'
SHOT PLUGGING	[YES/NO]	'Y' OR 'N'
SHOT PETALLING	[YES/NO]	'Y' OR 'N'

The current contents of the MIL-A-46100 Steel Armor Database also includes data previously published in Reference 2 and for clarification, henceforth, will be referred to as old data. Recently acquired, non-published data, which is being included in this report in Appendix I, will be referred to as the new data. The individual database contents for the old data and new data are summarized in Tables 4 and 5, respectively. It should be noted that the old data covers the MIL-A-46100 steel armor data associated with only two test projectiles and spans a significantly larger date range or time span than for the new data case. The combination of the old and new data represent eight hundred ninety-five (895) individual plates. The manual input of the new data

was temporarily suspended (March 1992) pending the implementation (by CSTA) of a direct access capability of their automated ballistic range by a remotely situated computer system. This was done to reduce the volume and size of this report without jeopardizing as an example what is contained in the database, that is, the various fields of information. Also, it was decided that the required time and manpower to manually load all of the data from the TAC Forms and ballistic records would be excessive. Please note that the purpose of this portion of the effort is to create the structure of the database and the mechanisms required for direct linkage to CSTA's computer system for accessing on-line ballistic test results and supporting data.

The MIL-A-46100 Steel Armor Database is located on a singleuser microcomputer system possessing a CS3 Level Accreditation to permit the processing of classified information up to a SECRET level. The devices and device attributes of the computer hardware comprising this microcomputer system is shown in Table Similarly, the products and product attributes of the computer software installed on this microcomputer system is shown in Table Regarding the system software, only those software products which were used for this program have been listed. It should also be noted that this microcomputer system possesses adequate data communications capabilities to permit the efficient transfer of ballistic data between the U.S. Army Combat Systems Activity and the U.S. Army Research Laboratory Materials Directorate currently situated at Watertown, Massachusetts. The administrative arrangements have been completed to permit the occurrence of this data transfer.

TABLE 4

MII		D STEEL ARMOR DAT ABASE CONTENTS*	TABASE	
PROJECTILE	OBL	DATE RANGE [MO-YR]	THICK RANGE [IN]	DATA REC [NUM]
CAL 0.30 AP M2	30	N/A	N/A	N/A
CAL 0.50 AP M2	30	N/A	N/A	N/A
14.5 MM API B32	30	N/A	N/A	N/A
14.5 MM API BS41	30	MAY 84-0CT 90	0.759-1.061	169
20 MM API-T M602	0	JUL 85-0CT 90	1.083-1.978	356
*OLD DATA (REFEREN	CE 2)		REC TOTAL:	525

TABLE 5

MII		STEEL ARMOR DAT ABASE CONTENTS*	TABASE	
PROJECTILE	OBL	DATE RANGE [MO-YR]	THICK RANGE [IN]	DATA REC [NUM]
CAL 0.30 AP M2	30	OCT 90-FEB 92	0.170-0.306	92
CAL 0.50 AP M2	30	OCT 90-FEB 92	0.267-0.591	64
14.5 MM API B32	30	OCT 90-MAR 92	0.572-0.766	36
14.5 MM API BS41	30	OCT 90-MAR 92	0.754-1.023	82
20 MM API-T M602	0	OCT 90-MAR 92	1.088-2.014	96
*NEW DATA			REC TOTAL:	370

TABLE 6

MIL-A-46100 STEEL MICROCOMPUTE	
DEVICE	DEVICE ATTRIBUTES
IBM PS/2 MODEL 80 MICROCOMPUTER	PROCESSOR: INTEL 80386
	MATH CO-PROCESSOR: INTEL 80387
	20 MHZ PROCESSING SPEED
	115 MB HARD DRIVE
	16 MB RANDOM ACCESS MEMORY
	DUAL 3.5-IN 1.44 MB DISKETTE DRIVES
	PORTS: 3 SERIAL, 2 PARALLEL
	101-KEY ENHANCED KEYBOARD
IBM MODEL 8514 COLOR DISPLAY	1024 X 768 RESOLUTION
LOGITECH PS/2 MOUSEMAN MOUSE	3 BUTTON BUS TYPE
IOMEGA DUAL 90 PRO BERNOULLI	DUAL 5.25-IN 90 MB DISK DRIVES
·	90 MB REMOVABLE DISK MEDIA
	180 MB COMPRESSED STORAGE PER DISK
HP MODEL 7475A PLOTTER	6 PENS
C.ITOH MODEL CI-3500 PRINTER	PRINT SPEED: 350 CPS DRAFT 87.5 CPS LQ
HP MODEL LASERJET 4 PRINTER	PRINT SPEED: 8 PPM RESOLUTION: 600 DPI
HAYES SMARTMODEM 2400 MODEM	COMM SPEED: 2400 BPS CONNECTIVITY: DIRECT DIAL-UP
ARL-WATERTOWN LOCAL-AREA-NET- WORK	COMM SPEED: 9600 BPS CONNECTIVITY: UNISYS MINI DDN EMAIL: VIA UNISYS MINI

TABLE 7

MIL-A-46100 STEEL MICROCOMPUTE	
PRODUCT	PRODUCT ATTRIBUTES
IBM PC/DOS 5.0 OPERATING SYSTEM	
LOTUS 1-2-3 3.1 SPREADSHEET	3-D SPREADSHEET ANALYSIS
	DATABASE MANAGEMENT SYSTEM
	8,192 ROW X 256 COLUMN GRID PER WORKSHEET
	UP TO 256 WORKSHEETS PER 3-D MULTIPLE-SHEET FILE
	MULTIPLE WORKSHEET FILES IN MEMORY (SINGLE/MULTIPLE WORKSHEET FILE TYPES)
	GRAPHICAL ANALYSIS
FUNK SIDEWAYS 2.0	LOTUS 1-2-3 3.1 ADD-IN
	90 DEGREE ROTATION OF DATA- BASE REPORTS
	LIMITLESS WIDTH DATABASE REPORTS
3-D VISIONS GRAFTOOL 3.3	SCIENTIFIC GRAPHICAL ANALYSIS
MANUGISTICS STATGRAPHICS + 6.0	STATISTICAL ANALYSIS
DCA CROSSTALK MK.4 2.0.1	DATA COMMUNICATIONS

The characteristics of Database Module 1, labelled 'ARL/MD ID & MIL SPEC ATTRIBUTES' and defined in Table 2, will now be further amplified. The label 'ARL/MD ID ATTRIBUTES 'is used to designate an arbitrarily defined eight (8) character, alphanumeric, key-field (index) identifier which inherently encodes:

- 1. Projectile Diameter Characters 1 and 2
  - [1-9] Character 1
    [0-9] Character 2
- 2. Projectile Type Character 3

[A-Z] where a single letter denotes a member of a projectile family possessing the same projectile diameter

- 3. Projectile Size Unit of Measurement Character 4.
  - 'C' for English Units [IN]
    'M' for Metric Units [MM]
- 4. Database Record Number Characters 5-8
  - [0-9] Character 5 [0-9] Character 6 [0-9] Character 7 [0-9] Character 8

This approach will now be illustrated by the following examples of key-field entries in the MIL-A-46100 Steel Armor Database.

- \* 30AC0001 CAL 0.30 AP M2 PROJECTILE, RECORD 1
- \* 50AC0010 CAL 0.50 AP M2 PROJECTILE, RECORD 10
- \* 14AM0020 14.5 MM API B32 PROJECTILE, RECORD 20
- \* 14BM0030 14.5 MM API BS41 PROJECTILE, RECORD 30
- \* 20AM0040 20 MM API-T M602 PROJECTILE, RECORD 40

The label 'MIL SPEC ATTRIBUTES' associated with Database Module 1 (Table 2) has been defined to include the following fields:

- 1. MIL SPEC NUMBER
- 2. MIL SPEC REVISION
- 3. MIL SPEC AMENDMENT
- 4. MIL SPEC MATERIALS CLASS

Although MIL SPEC MIL-A-46100 is the sole specification included in this database, the database design approach to Database Module 1 was to make this module as generic as possible to permit the extension of this approach to the possible creation of additional databases pertaining to any other pertinent Military Specifications.

The database contents of the **new data** associated with each of the five (5) test projectiles associated with MIL-A-46100 have been printed out modularly in the following **four (4)** parts and included in **Appendix I** of this document.

1. DATABASE MODULE 1: ARL/MD ID & MIL SPEC ATTRIBUTES

DATABASE MODULE 2: PLATE PRODUCTION HISTORY

2. DATABASE MODULE 3: MATERIALS PROPERTIES

3. DATABASE MODULE 4: BALLISTIC PERFORMANCE

4. DATABASE MODULE 5: CHEMICAL COMPOSITIONS

#### **Conclusions**

An Armor Steel database has been designed, populated, and used for the analysis of MIL-A-46100 steel ballistically tested by the U.S. Army Combat Systems Test Activity (CSTA). This database is situated on a single-user, stand-a-lone, microcomputer system which is capable of being linked to a remotely-situated CSTA host computer system. As discussed previously this linkage has not been completed. Once completed (linkage) the database will be updated on a continuous basis. All requests for data/comparisons via this database should be sent through the PM Survivability to ARL/MD. Please note that the data is company sensitive and all non-government requests will be honored for data associated only with the requesting company.

#### Recommendations

- \* Continue effort to get CSTA on-line with an automated ballistic range so that all the data generated can be electronically transferred.
- \* Instruct the producers, etc. to completely utilize the required MIL-STD-367, Format I when requesting ballistic testing of MIL-A-46100 armor steel.
- \* Authorize CSTA the ability to return or deny requests for ballistic acceptance testing if the required Format I of MIL-STD-367 is not fully and accurately completed and signed-off by the appropriate government agency.
- \* Update MIL-STD-367, Format I to include the tempering temperature.

### **Acknowledgements**

The authors acknowledge the following individuals for their invaluable contribution to the success of this program task.

#### ARL/MD

Michael Castro Shun-Chin Chou Dennis Gosselin Robert Muldoon Joseph Prifti Karl Salomon Anthone Zarkades

#### CSTA

William H. Allison

#### CONTRACTORS

R.C. Associates - Raymond Cellitti

#### References

- Military Specification MIL-A-46100.
- 2. Squillacioti, Richard, J. <u>Preliminary Report: Analysis of Data Obtained from CSTA on MIL-A-46100 Material Ballistically Tested Between 1986 and 1990</u>. U.S. Army Materials Technology Laboratory, Watertown, MA; August 1, 1991. Preliminary edition containing sensitive material for trial use and comment and not available for general distribution.

#### APPENDIX I

Appendix I contains the hardcopy database reports representing the contents of the MIL-A-46100 Steel Armor Database (The producers and the fabricators were removed for distribution purposes only.). The report format for each of the five (5) projectiles is as follows:

REPORT 1: DATABASE MODULE 1: ARL/MD ID & MIL SPEC ATTRIBUTES

DATABASE MODULE 2: PLATE PRODUCTION HISTORY

REPORT 2: DATABASE MODULE 3: MATERIALS PROPERTIES

REPORT 3: DATABASE MODULE 4: BALLISTIC PERFORMANCE

REPORT 4: DATABASE MODULE 5: CHEMICAL COMPOSITIONS

For REPORT 2, the database field Actual Plate Thickness (ACT PLATE TH), which is situated in Database Module 4: Ballistic Performance, has been intentionally duplicated only for purposes of enhancement. Database design considerations preclude the duplication of any of the fields comprising the database. This consideration has been faithfully followed.

The page numbering format for each of the four (4) reports is **PAGE 1 OF N**, where N is the maximum number of pages and varies with the size of a report as per **TABLE A1.1**.

TABLE A1.1

MI	REPORT SIZ	TEEL ARMOR I ES AS A FUNC DJECTILE		
PROJECTILE	REPORT 1 N [PGS]	REPORT 2 N [PGS]	REPORT 3 N [PGS]	REPORT 4 N [PGS]
CAL 0.30 AP M2	2	2	2	4
CAL 0.50 AP M2	2	2	2	4
14.5 MM API B32	1	11	1	2
14.5 MM API BS41	2	2	2	4
20 MM API-T M602	3	3	3	6

PAGE 1 OF 2

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.30 AP M2
DATABASE MODULE 1: MTL ID & MIL SPEC ATTRIBUTES
DATABASE MODULE 2: PLATE PRODUCTION HISTORY

MIL - A - 46100  MIL -		MAICE	TKCD C	FABR	HEAL IR	HEAL NO	FLA IE NO
MIL - A - 46100			1 1 1 1 1 1 1	1 1 1 1 1 1 1			
MIL - A - 46100  MIL -						B8660	B\$660-86BB
MIL - A - 46100						B8660	B\$660 - 86AB
MIL - A - 46100 MIL - A - 4610						B\$660	B8660-86EB
MIL-A-46100						663455	168
MIL - A - 46100  MIL -						B8337	B8337-5CB
MIL - A - 46100  MIL -						661914	243
MIL - A - 46100						435564	327A
MIL - A - 46100						D3707	71147
MIL - A - 46100 MIL - A - 4610						B9675	B9675-2BE
MIL - A - 46100 MIL - A - 4610						B9675	B9675-5AD
MIL - A - 46100						B9675	B9675-4BB
MIL - A - 46100						B9628	B9628-8DE
MIL - A + 6100						B\$\$96	B6896-1DE
MIL - A . 6100 MIL - A . 46100	2					R0112	R0112-2AE
MIL - A - 46100						B8896	B\$896-5CA
MIL - A - 46100	7					B9628	B9628-2EP
MIL - A - 46100	7					R0112	R0112-5BG
MIL - A - 46100						R0538	R0538-2CD
MIL - A - 46100  MIL -						R0538	R0538-2BC
MIL - A - 46100						R0326	R0326-9DB
MIL - A - 46100						663527	344
MIL - A - 46100						R0512	R0512-5AC
MIL - A - 46100						R0602	R0602-4AC
MIL - A - 46100						663809	672
MIL - A - 46100						B7397	B7379-8CA
MIL - A - 46100						B7397	B7397-8AD
MIL - A - 46100						663810	755
MIL - A - 46100 MIL - A - 46100						664154	109
MIL - A - 46100						664155	872
MIL - A - 46100						663810	617
MIL - A - 46100 MIL - A - 46100						603809	622
MIL - A - 46100						663527	287
MIL - A - 46100 MIL - A - 46100						664154	620
MIL - A - 46100 MIL - A - 46100						663810	766
MIL - A - 46100						664155	614
MIL-A-46100 MIL-A-46100 MIL-A-46100 MIL-A-46100 MIL-A-46100 MIL-A-46100 MIL-A-46100						R0465	R0465 6BB
MIL-A-46100 MIL-A-46100 MIL-A-46100 MIL-A-46100 MIL-A-46100 MIL-A-46100						B9628	B9628-2RC
MIL - A - 46100 MIL - A - 46100 MIL - A - 46100 MIL - A - 46100 MIL - A - 46100						R0538	R0538~5GC
MIL - A - 46100 MIL - A - 46100 MIL - A - 46100 MIL - A - 46100						435765	495
MIL - A - 46100 MIL - A - 46100 MIL - A - 46100						664692	898
MIL - A - 46100 MIL - A - 46100						664693	903
MIL-A-46100						500166	719
						R0602	R0602 - 2CD
30AC0044 MIL-A-46100 C	7					R0326	R0326 - 4CD
-46100	2					R0326	R0326-2AC
MIL-A-46100	2					R 1450	R 1450 - 3BE

PAGE 2 OF 2

CSTA-ARL/MD JOINT EPPORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.30 AP M2 DATABASE MODULE 1: MTL ID & MIL SPEC ATTRIBUTES DATABASE MODULE 2: PLATE PRODUCTION HISTORY

ARL/MD ID	SPEC NO	REV	AMD	SPEC MAT CL	PROD	FABR	HEAT TR	HEAT NO	LOT NO	PLATE NO
30AC0047	MIL-A-46100	O	 	; 1 1 1 1 1	:    -  -  -  -  -  -		! 1 1 1 1 1	R0326		R0326-8AC
30AC0048	MIL - A - 46100	۵						R0326		R0326-71A
30AC0049	MIL-A-46100	Ω						R0326		R0326-5MP
30AC0050	MIL-A-46100	Ω						R0549		R0549-4BF
30AC0051	MIL-A-46100	Ω						R0549		R0549-5ED
30AC0052	MIL-A-46100	Q						664693		868
30AC0053	MIL-A-46100	۵						R1450		R1450-2AD
30AC0054	MIL-A-46100	Ω						B7397		B7379-1GB
30AC0055	MIL-A-46100	۵						664155		380
30AC0056	MIL-A-46100	ပ	7					R1450		R1450-6MF
30AC0057	MIL-A-46100	Ω						B7397		B7397-2RA
30AC0058	MIL - A - 46100	Ω						400296		144
30AC0059	MIL-A-46100	۵						501651		170
30AC0060	MIL - A - 46100	ပ	7					R2324		R2324-7ME
30AC0061	MIL-A-46100	ບ	7					R2324		R2324-4DE
30AC0062	MIL-A-46100	Q						R2324		R2324-4GF
30AC0063	MIL-A-46100	Ω						R0538		R0538-39AC
30AC0064	MIL-A-46100	Ω						R0549		R0549-39AD
30AC0065	MIL - A - 46100	Ω						G0808		52660
30AC0066	MIL-A-46100	Ω						829564		4116
30AC0067	MIL-A-46100	۵						R2324		R2324-5BC
30AC0068	MIL - A - 46100	Ω						R3614		R3614-1AC
30AC0069	MIL-A-46100	Ω						R2324		R2324-5AE
30AC0070	MIL-A-46100	Ω						829565		4129
30AC0071	MIL-A-46100	۵						829564		4113
30AC0072	MIL-A-46100	۵						R2324		R2324-8KC
30AC0073	MIL-A-46100	Ω						401085		119
30AC0074	MIL-A-46100	Ω						4859K		40463A
30AC0075	MIL-A-46100	۵						4996K		42301
30AC0076	MIL - A - 46100	Ω						4860K		40455A
30AC0077	MIL-A-46100	Ω						401085		129
30AC0078	MIL-A-46100	۵						400296		641
30AC0079	MIL-A-46100	۵						829565		4123
30AC0080	MIL-A-46100	۵						401085		837
30AC0081	MIL-A-46100	۵						R3614		R3614-9CD
30AC0082	MIL-A-46100	۵						R3614		R3614-39PD
30AC0083	MIL-A-46100	۵						R3796		R3796-5MC
30AC0084	MIL - A - 46100	۵						580031		3759451
30AC0085	MIL-A-46100	Ω						9266J		SS077A
30AC0086	MIL - A - 46100	ပ						R 4848		R4848-2BF
30AC0087	MIL - A - 46100	ပ						R4841		R4841-7AF
30AC0088	MIL-A-46100	۵						R 3620		R 3620 4A F
30AC0089	MIL - A - 46100	ບ						R 4845		R4845-6AE
30 A C 0090	MII A - 46100	· C						0.39K.0		R 3960 - AMC1
2040001	00104 4 1104	1						2000		TOWN BACK
								27070		DAGAK CVT

PAGE LOF 2

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.30 AP M2 DATABASE MODULE 3: MATERIALS PROPERTIES

BRN		PLATE TH	HARD	2	LT	Ę	HARD	Z
0.297         512         9.97         15.0         15.3           0.249         512         9.97         15.0         15.3           0.249         512         9.97         15.0         16.3           0.270         495         4.20         9.0         6.0           0.278         477         4.20         9.0         6.0           0.278         477         4.20         9.0         6.0           0.278         477         4.20         9.0         6.0           0.278         477         4.20         9.0         6.0           0.192         512         6.0         11.7         10.0           0.243         512         6.0         11.7         10.0           0.243         512         6.95         21.0         23.7           0.243         512         6.95         21.0         23.7           0.244         477         6.17         20.0         19.0           0.245         477         6.0         11.7         21.0           0.244         477         6.1         11.0         11.0           0.244         477         6.1         11.0         11.0     <	RL/MD ID	NI)	[BRN]	INON	[FT-LB]	(FT-LB)	[BRN]	IDEG FI
0.188         512         9.97         13.3         16.3           0.249         512         9.97         16.7         18.7           0.229         512         6.08         12.3         12.0           0.278         477         4.20         9.0         6.0           0.278         477         3.50         10.0         15.0           0.176         477         3.57         10.0         15.0           0.192         512         6.08         12.3         12.1           0.192         512         6.01         10.0         15.0           0.243         512         6.05         21.0         20.3           0.243         512         6.95         21.7         20.0         19.0           0.243         512         6.95         21.7         20.0         19.0           0.243         512         6.95         21.7         11.0         19.0           0.244         477         6.17         20.0         19.0           0.244         477         6.17         20.0         19.0           0.244         477         6.14         22.0         19.0           0.244         4	0AC0001	0.297	512	9.97	15.0	15.3	i   	0991
0.249         512         997         16.7         18.7           0.270         455         430         8.0         6.0           0.278         477         4.20         9.0         6.0           0.278         477         4.20         9.0         6.0           0.170         514         5.20         11.7         10.3           0.170         512         5.63         24.0         23.7           0.243         512         5.63         24.0         23.7           0.243         512         5.63         21.0         20.3           0.243         512         6.57         14.0         18.7           0.243         512         6.77         20.0         19.0           0.243         512         6.77         20.0         19.0           0.244         477         6.17         20.0         19.0           0.244         477         6.17         20.0         11.0           0.244         477         6.17         20.0         20.3           0.244         477         6.17         20.0         11.0           0.245         477         6.14         12.0         12.0 <td>10AC0002</td> <td>0.188</td> <td>\$12</td> <td>9.97</td> <td>13.3</td> <td>16.3</td> <td></td> <td>1660</td>	10AC0002	0.188	\$12	9.97	13.3	16.3		1660
0.270         495         4.30         8.0         6.0           0.229         512         6.08         12.3         6.0           0.278         477         4.20         9.0         6.0           0.278         477         4.20         9.0         6.0           0.170         514         5.20         11.7         10.3           0.192         512         10.01         20.0         15.7           0.233         512         5.63         24.0         23.7           0.245         512         5.63         24.0         23.7           0.235         512         5.63         21.7         21.0         20.3           0.245         512         6.95         11.7         14.0         18.7           0.236         477         6.95         115.7         14.0         18.7           0.244         477         6.17         20.0         20.3         14.0         18.7           0.244         477         6.17         20.0         20.3         11.0         11.0           0.244         477         6.14         6.27         14.7         14.0         11.0         11.0           0.	<b>10 A C 00 0 3</b>	0.249	512	9.97	16.7	18.7		1660
0.229         \$12         6.08         12.3         12.7           0.201         477         4.20         9.0         6.0           0.202         477         4.20         9.0         6.0           0.176         477         4.20         9.0         6.0           0.176         512         5.63         20.0         19.7           0.243         512         5.63         21.0         20.3           0.243         512         5.63         21.0         20.3           0.245         512         6.95         21.7         20.0         19.7           0.245         512         6.95         21.7         20.0         19.0         20.3           0.245         517         6.95         11.7         14.0         18.7         20.0         20.3         20.0         20.3         20.0         20.3         20.0         20.3         20.0         20.3         20.0         20.3         20.0         20.3         20.0         20.3         20.0         20.3         20.0         20.3         20.0         20.3         20.0         20.3         20.0         20.3         20.0         20.3         20.0         20.0         20.3	10AC0004	0.270	495	4.30	8.0	0.9	495	1650
0.201         477         4.20         9.0         6.0           0.278         477         4.20         9.0         6.0           0.192         512         10.01         10.0         15.0           0.192         512         10.01         20.0         19.7           0.293         512         5.63         24.0         23.7           0.243         512         6.95         21.7         21.0         20.3           0.234         512         6.77         20.0         19.0         20.3           0.235         530         6.77         20.0         19.0         20.0           0.236         530         6.77         20.0         19.0         20.0         18.7           0.244         477         6.57         14.0         18.7         18.3         18.0           0.246         477         6.17         20.0         11.0         20.0         20.0         10.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0         20.0	10AC0005	0.229	512	<b>8</b> 0.9	12.3	12.7		1660
0.278	0AC0006	0.201	411	4.20	9.0	0.9	177	1650
0.170         \$14         \$2.0         \$11.7         \$10.3           0.192         \$12         \$16.3         \$20         \$19.7           0.243         \$12         \$6.3         \$24.0         \$23.7           0.245         \$12         \$6.95         \$21.0         \$20.3           0.245         \$12         \$6.95         \$21.0         \$20.3           0.245         \$12         \$6.95         \$21.0         \$20.3           0.233         \$477         \$6.77         \$20.0         \$20.3           0.236         \$50         \$6.77         \$20.0         \$20.0           0.236         \$477         \$6.17         \$20.0         \$20.0           0.244         \$477         \$6.17         \$20.0         \$20.3           0.256         \$477         \$6.17         \$20.0         \$20.3           0.247         \$477         \$6.06         \$22.0         \$17.0           0.259         \$477         \$6.83         \$18.7         \$10.0           0.260         \$477         \$4.06         \$22.0         \$17.0           0.289         \$477         \$4.06         \$22.0         \$18.0           0.280         \$4.28	10AC0007	0.278	417	3.57	10.0	15.0	417	1650
0.192         512         10.01         20.0         19.7           0.253         512         5.63         24.0         23.7           0.243         512         5.63         24.0         23.7           0.243         512         6.95         21.0         20.3           0.234         512         6.77         20.0         19.0           0.236         530         6.77         20.0         19.0           0.243         574         6.95         11.7         21.0           0.236         477         6.17         20.0         20.0           0.244         477         6.17         20.0         20.3           0.244         477         6.17         20.0         20.3           0.244         477         6.17         20.0         20.3           0.244         477         6.17         20.0         20.3           0.244         477         6.17         20.0         20.3           0.255         477         4.04         11.7         14.0           0.289         477         4.04         12.0         10.0           0.290         477         4.08         13.0 <td< td=""><td>10 A C 00 08</td><td>0.170</td><td>514</td><td>5.20</td><td>11.7</td><td>10.3</td><td>495</td><td>1580</td></td<>	10 A C 00 08	0.170	514	5.20	11.7	10.3	495	1580
0.253         512         5.63         24.0         23.7           0.293         512         5.63         24.0         23.7           0.243         512         6.95         21.0         20.3           0.245         512         6.77         20.0         19.0           0.233         477         6.57         14.0         18.7           0.243         477         6.57         14.0         18.7           0.236         477         6.17         20.0         20.0           0.244         477         6.17         20.0         20.3           0.244         477         6.17         20.0         20.3           0.247         477         6.17         20.0         20.3           0.247         477         6.04         11.7         14.0           0.247         477         6.04         12.0         11.0           0.247         477         4.04         22.0         11.0           0.255         477         4.04         22.0         14.0           0.256         477         4.04         22.0         14.0           0.257         477         4.08         13.0	10AC0009	0.192	512	10.01	20.0	19.7	512	1660
0.293       \$112       \$6.33       \$21.0       \$20.3         0.243       \$112       \$6.95       \$21.7       \$21.0         0.234       \$12       \$6.95       \$21.7       \$21.0         0.236       \$37       \$6.77       \$10.0       \$10.0         0.236       \$477       \$6.95       \$15.7       \$18.3         0.244       \$477       \$6.17       \$20.0       \$20.3         0.256       \$477       \$6.17       \$20.0       \$20.3         0.247       \$477       \$6.17       \$20.0       \$20.3         0.250       \$477       \$6.17       \$20.0       \$20.3         0.247       \$4.04       \$12.0       \$17.0         0.289       \$477       \$4.08       \$12.0       \$10.0         0.289       \$477       \$4.08       \$10.0       \$10.0         0.299       \$477       \$4.08       \$10.0       \$10.0         0.212       \$477       \$4.08       \$10.0       \$10.0         0.214       \$477       \$4.08       \$10.0       \$10.0         0.214       \$477       \$4.08       \$10.0       \$10.0         0.214       \$4.05       \$25.0       \$18.7<	10AC0010	0.253	512	5.63	24.0	23.7		1660
0.243         \$12         6.95         21.7         21.0           0.233         477         6.57         14.0         18.7           0.234         530         6.77         19.0         20.0           0.235         477         6.57         14.0         18.7           0.236         477         6.17         19.0         20.0           0.236         477         6.17         21.0         20.3           0.244         477         6.17         20.0         20.3           0.244         477         6.17         20.0         20.3           0.250         477         6.04         11.7         14.0           0.247         477         6.04         11.7         14.0           0.289         477         6.04         11.0         10.0           0.290         477         4.04         12.0         11.0           0.202         477         4.04         12.0         14.0           0.242         477         4.04         12.0         14.0           0.242         477         4.04         12.0         14.0           0.242         477         4.04         12.0	10AC0011	0.293	512	5.63	21.0	20.3		1660
0.245     \$12     6.77     20.0     19.0       0.236     \$477     6.57     14.0     18.7       0.236     \$477     6.57     14.0     18.7       0.246     \$477     6.17     21.0     20.0       0.246     \$477     6.17     21.0     21.3       0.247     \$477     6.17     20.0     20.3       0.260     \$477     6.04     11.7     14.0       0.260     \$477     6.04     11.7     24.0       0.260     \$477     6.04     11.7     24.0       0.260     \$477     6.04     12.0     11.0       0.289     \$477     \$4.04     12.0     11.0       0.280     \$477     \$4.04     12.0     14.0       0.280     \$477     \$4.08     12.0     14.0       0.242     \$477     \$4.08     23.0     16.0       0.242     \$477     \$4.08     12.0     18.0       0.243     \$4.7     \$4.04     20.0     18.0       0.254     \$477     \$4.08     12.0     11.0       0.254     \$477     \$4.08     13.0     11.0       0.254     \$477     \$4.08     10.0     10.0       0.254 </td <td>10AC0012</td> <td>0.243</td> <td>512</td> <td>6.95</td> <td>21.7</td> <td>21.0</td> <td></td> <td>1660</td>	10AC0012	0.243	512	6.95	21.7	21.0		1660
0.236     \$77     6.57     14.0     18.7       0.236     \$30     6.77     19.0     20.0       0.244     477     6.57     14.7     18.3       0.244     477     6.17     21.0     20.3       0.244     477     6.17     21.0     20.3       0.244     477     6.17     22.0     17.0       0.250     477     6.04     11.7     14.0       0.240     477     6.04     11.7     24.0       0.240     477     4.08     22.0     17.0       0.202     477     4.04     12.0     11.0       0.184     504     6.26     10.0     10.0       0.184     504     6.26     10.0     10.0       0.202     477     4.08     12.0     14.0       0.203     477     4.08     23.0     18.0       0.212     477     4.08     13.0     11.0       0.212     477     4.08     13.0     11.0       0.256     477     4.08     13.0     11.0       0.256     477     4.08     10.0     10.0       0.256     477     4.08     10.0     10.0       0.274     512 <t< td=""><td>10AC0013</td><td>0.245</td><td>\$12</td><td>6.77</td><td>20.0</td><td>19.0</td><td></td><td>1660</td></t<>	10AC0013	0.245	\$12	6.77	20.0	19.0		1660
0.243         \$30         6.77         19.0         20.0           0.243         \$04         6.95         15.7         15.7           0.236         477         6.17         21.0         21.3           0.244         477         6.17         20.0         20.3           0.244         477         6.17         20.0         20.3           0.240         477         6.04         11.7         14.0           0.247         477         4.08         22.0         17.0           0.240         477         4.08         22.0         17.0           0.242         477         4.04         12.0         11.0           0.184         504         6.26         10.0         10.0           0.184         504         6.26         10.0         10.0           0.184         504         6.26         10.0         10.0           0.252         477         4.08         12.0         14.0           0.260         514         4.05         25.0         18.0           0.271         477         4.08         13.0         11.0           0.280         477         4.08         13.0	10AC0014	0.233	417	6.57	14.0	18.7		1660
0.243         \$04         6.95         15.7         15.7           0.236         477         6.17         21.0         21.3           0.244         477         6.17         20.0         20.3           0.250         477         6.04         11.7         14.0           0.247         477         4.08         22.0         17.0           0.202         477         4.08         22.0         18.7           0.202         477         4.04         12.0         11.0           0.202         477         4.04         12.0         11.0           0.184         504         6.26         10.0         10.0           0.185         512         6.26         10.0         10.0           0.280         477         4.08         20.0         14.0           0.274         477         4.08         25.0         18.0           0.274         477         4.08         25.0         18.0           0.274         477         4.08         13.0         11.0           0.274         477         4.08         13.0         10.0           0.274         477         4.08         13.0	10AC0015	0.236	530	6.77	19.0	20.0		1660
0.236     477     6.57     14.7     18.3       0.244     477     6.17     21.0     21.3       0.250     477     6.17     20.0     20.3       0.250     477     6.04     11.7     14.0       0.284     477     6.04     11.7     14.0       0.205     477     6.04     11.7     14.0       0.202     477     6.04     12.0     17.0       0.202     477     4.04     12.0     11.0       0.189     512     6.26     10.0     10.0       0.189     512     6.26     10.0     10.0       0.203     477     4.08     25.0     14.0       0.242     477     4.08     25.0     18.0       0.274     477     4.08     25.0     18.0       0.274     477     4.08     13.0     11.0       0.274     477     4.08     13.0     11.0       0.274     477     4.08     13.0     11.0       0.255     477     4.08     10.0     11.0       0.274     477     4.08     10.0     11.0       0.274     512     6.44     22.0     18.7       0.274     512 <t< td=""><td>10AC0016</td><td>0.243</td><td>504</td><td>6.95</td><td>15.7</td><td>15.7</td><td></td><td>1660</td></t<>	10AC0016	0.243	504	6.95	15.7	15.7		1660
0.244       477       6.17       21.0       21.3         0.184       477       6.17       20.0       20.3         0.250       477       6.04       11.7       14.0         0.247       477       6.83       31.7       24.0         0.289       477       6.83       18.0       11.0         0.202       477       4.04       12.0       11.0         0.189       512       6.26       10.0       10.0         0.209       477       4.08       20.0       14.0         0.242       477       4.08       22.0       18.0         0.242       477       4.08       13.0       11.0         0.252       495       4.28       20.0       18.0         0.271       477       4.08       13.0       11.0         0.272       477       4.08       13.0       11.0         0.274       4.05       4.28       23.0       18.7         0.274       4.05       4.28       13.0       11.0         0.274       4.05       4.28       13.0       11.0         0.274       4.05       4.28       13.0       11.0 <tr< td=""><td>0AC0017</td><td>0.236</td><td>477</td><td>6.57</td><td>14.7</td><td>18.3</td><td></td><td>1660</td></tr<>	0AC0017	0.236	477	6.57	14.7	18.3		1660
0.184         477         6.17         20.0         20.3           0.250         477         6.04         11.7         14.0           0.247         477         6.83         13.7         24.0           0.289         477         6.83         18.0         18.7           0.202         477         4.04         12.0         11.0           0.189         512         6.26         10.0         10.0           0.209         477         4.05         9.0         7.0           0.252         495         4.28         20.0         14.0           0.242         477         4.08         23.0         16.0           0.252         495         4.08         13.0         11.0           0.241         477         4.08         13.0         11.0           0.252         495         4.08         13.0         11.0           0.214         495         4.08         13.0         11.0           0.259         495         4.08         13.0         11.0           0.250         477         4.08         10.0         10.0           0.274         512         6.81         23.0         14	0AC0018	0.244	477	6.17	21.0	21.3		1660
0.250         477         6.04         11.7         14.0           0.247         477         6.68         22.0         17.0           0.289         477         6.83         18.0         17.0           0.202         477         4.04         12.0         11.0           0.184         504         6.26         10.0         10.0           0.184         504         6.26         10.0         10.0           0.209         477         4.05         9.0         7.0           0.242         477         4.08         25.0         14.0           0.242         477         4.08         25.0         18.0           0.242         477         4.08         25.0         18.0           0.271         477         4.08         13.0         11.0           0.212         477         4.08         13.0         11.0           0.259         495         4.08         13.0         11.0           0.259         477         4.08         10.0         11.0           0.274         512         6.13         16.7         17.0           0.278         495         4.27         7.0         9.0	10AC0019	0.184	477	6.17	20.0	20.3		1660
0.247     477     4.08     22.0     17.0       0.289     477     6.83     31.7     24.0       0.202     477     6.83     18.0     18.7       0.184     504     6.26     10.0     10.0       0.189     504     6.26     10.0     10.0       0.209     477     4.08     25.0     14.0       0.242     477     4.08     25.0     14.0       0.242     477     4.08     25.0     18.0       0.242     477     4.08     25.0     18.0       0.271     477     4.08     23.0     16.0       0.272     477     4.08     13.0     10.0       0.214     495     4.28     13.0     11.0       0.259     495     4.08     13.0     11.0       0.274     512     6.44     22.0     18.7       0.274     512     6.44     22.0     18.7       0.274     512     6.44     22.0     18.7       0.274     512     6.44     22.0     18.7       0.208     495     4.28     10.0     10.0       0.208     495     4.27     7.0     10.0       0.248     495 <td< td=""><td>10AC0020</td><td>0.250</td><td>477</td><td>90.9</td><td>11.7</td><td>14.0</td><td></td><td>1660</td></td<>	10AC0020	0.250	477	90.9	11.7	14.0		1660
0.306         477         6.52         31.7         24.0           0.229         477         6.83         18.0         18.7           0.202         477         4.04         12.0         11.0           0.184         504         6.26         10.0         10.0           0.209         477         4.05         9.0         7.0           0.242         477         4.08         25.0         14.0           0.242         477         4.08         25.0         18.0           0.242         477         4.08         23.0         16.0           0.271         477         4.08         13.0         10.0           0.272         477         4.08         13.0         11.0           0.273         495         4.28         13.0         11.0           0.274         495         4.28         13.0         11.0           0.259         495         4.08         13.0         11.0           0.274         512         6.44         22.0         18.7           0.278         512         6.44         22.0         18.7           0.278         495         4.27         7.0         10.	10 A C 00 21	0.247	477	4.08	22.0	17.0	417	1650
0.289         477         6.83         18.0         18.7           0.202         477         4.04         12.0         11.0           0.184         504         6.26         10.0         10.0           0.189         512         6.26         10.0         10.0           0.209         477         4.08         20.0         14.0           0.242         477         4.08         25.0         14.0           0.254         477         4.08         23.0         16.0           0.271         477         4.08         23.0         18.0           0.272         477         4.08         13.0         10.0           0.273         495         4.28         13.0         11.0           0.284         495         4.28         13.0         11.0           0.293         512         6.44         22.0         18.7           0.274         512         6.14         22.0         18.7           0.278         512         6.44         22.0         12.0           0.278         512         6.14         22.0         13.0           0.278         512         6.14         22.0	10AC0022	0.306	477	6.52	31.7	24.0		1660
0.202     477     4.04     12.0     11.0       0.184     504     6.26     10.0     10.0       0.189     512     6.26     10.0     10.0       0.209     477     4.05     9.0     7.0       0.242     477     4.08     25.0     18.0       0.242     477     4.08     25.0     18.0       0.271     477     4.08     23.0     18.0       0.273     477     4.08     13.0     11.0       0.274     495     4.28     13.0     11.0       0.259     495     4.08     10.0     11.0       0.274     512     6.44     22.0     18.7       0.274     512     6.44     22.0     18.7       0.274     512     6.44     22.0     18.7       0.274     512     6.44     22.0     18.7       0.278     512     6.44     22.0     18.7       0.208     495     4.27     7.0     9.0       0.208     495     4.27     7.0     9.0       0.248     495     4.14     10.0     8.0       0.248     495     4.14     10.0     8.0       0.258     512     6.04 </td <td>0AC0023</td> <td>0.289</td> <td>477</td> <td>6.83</td> <td>18.0</td> <td>18.7</td> <td></td> <td>1660</td>	0AC0023	0.289	477	6.83	18.0	18.7		1660
0.184         504         6.26         10.0         10.0           0.189         512         6.26         10.0         10.0           0.209         477         4.08         25.0         14.0           0.242         477         4.08         25.0         18.0           0.260         514         4.08         25.0         18.0           0.271         477         4.08         23.0         18.0           0.272         477         4.08         13.0         11.0           0.214         495         4.28         13.0         11.0           0.259         495         4.05         28.0         19.0           0.259         495         4.05         22.0         18.7           0.274         512         6.44         22.0         18.7           0.274         512         6.44         22.0         18.7           0.274         512         6.13         16.7         17.0           0.208         495         4.27         7.0         9.0           0.208         495         4.14         10.0         9.0           0.213         495         4.14         10.0         9.0	0AC0024	0.202	477	4.04	12.0	11.0	477	1650
0.189         512         6.26         10.0         10.0           0.209         477         4.05         9.0         7.0           0.242         477         4.08         25.0         14.0           0.242         477         4.08         25.0         18.0           0.256         514         4.05         23.0         16.0           0.212         477         4.08         13.0         10.0           0.214         495         4.28         13.0         11.0           0.259         495         4.05         28.0         19.0           0.256         477         4.08         10.0         11.0           0.256         477         4.08         10.0         11.0           0.256         477         4.08         10.0         11.0           0.274         512         6.81         23.0         24.3           0.208         495         4.27         7.0         9.0           0.208         495         4.18         14.0         9.0           0.248         495         4.18         14.0         12.0           0.248         495         4.14         10.0         9.0 </td <td>0AC0025</td> <td>0.184</td> <td>204</td> <td>6.26</td> <td>10.0</td> <td>10.0</td> <td></td> <td>1660</td>	0AC0025	0.184	204	6.26	10.0	10.0		1660
0.209 477 4.05 9.0 7.0 0.252 495 4.28 20.0 14.0 0.242 477 4.08 25.0 18.0 0.271 477 4.04 20.0 18.0 0.214 495 4.28 13.0 11.0 0.259 495 4.05 28.0 19.0 0.256 477 4.08 110.0 11.0 0.256 477 4.08 110.0 11.0 0.258 497 4.05 28.0 19.0 0.274 512 6.81 22.0 18.7 0.278 512 6.81 23.0 24.3 0.208 495 4.27 7.0 10.0 0.208 495 4.14 10.0 8.0 0.248 495 4.14 10.0 8.0 0.258 512 6.83 18.7 21.3	0AC0026	0.189	512	6.26	10.0	10.0		1660
0.252         495         4.28         20.0         14.0           0.242         477         4.08         25.0         18.0           0.260         514         4.05         23.0         18.0           0.271         477         4.04         20.0         18.0           0.212         477         4.08         13.0         10.0           0.259         495         4.05         28.0         19.0           0.256         477         4.08         10.0         11.0           0.293         512         6.44         22.0         18.7           0.274         512         6.13         16.7         17.0           0.208         495         4.27         7.0         9.0           0.201         477         4.09         7.0         10.0           0.248         495         4.18         14.0         12.0           0.248         495         4.18         14.0         8.0           0.248         495         4.14         10.0         8.0           0.248         495         4.14         10.0         20.3           0.258         512         6.04         19.3         23.3<	0AC0027	0.209	477	4.05	9.0	7.0	417	1650
0.242     477     4.08     25.0     18.0       0.260     514     4.05     23.0     16.0       0.271     477     4.08     13.0     10.0       0.214     495     4.28     13.0     11.0       0.259     495     4.05     28.0     19.0       0.293     512     6.44     22.0     18.7       0.274     512     6.81     23.0     24.3       0.278     512     6.13     16.7     17.0       0.208     495     4.27     7.0     9.0       0.201     477     4.09     7.0     10.0       0.248     495     4.18     14.0     12.0       0.248     495     4.18     14.0     12.0       0.248     495     4.18     14.0     12.0       0.248     495     4.18     14.0     12.0       0.248     495     4.18     14.0     12.0       0.248     495     4.18     14.0     12.0       0.248     495     4.18     14.0     12.0       0.258     512     6.04     19.3     23.3       0.258     512     6.04     19.3     23.3       0.279     512     6	0AC0028	0.252	495	4.28	20.0	14.0	495	1650
0.260         514         4.05         23.0         16.0           0.271         477         4.04         20.0         18.0           0.212         477         4.08         13.0         11.0           0.214         495         4.28         13.0         11.0           0.259         477         4.08         10.0         11.0           0.274         512         6.44         22.0         18.7           0.274         512         6.13         16.7         17.0           0.278         512         6.13         16.7         17.0           0.208         495         4.27         7.0         9.0           0.201         477         4.09         7.0         10.0           0.248         495         4.18         14.0         12.0           0.248         495         4.18         14.0         12.0           0.248         495         4.18         14.0         12.0           0.248         495         4.18         14.0         12.0           0.248         495         4.18         14.0         12.0           0.258         512         6.04         19.3         23.	0AC0029	0.242	477	4.08	25.0	18.0	477	1650
0.271     477     4.04     20.0     18.0       0.212     477     4.08     13.0     10.0       0.214     495     4.28     13.0     11.0       0.259     495     4 05     28.0     11.0       0.293     512     6.44     22.0     18.7       0.274     512     6.81     23.0     24.3       0.278     512     6.13     16.7     17.0       0.208     495     4.27     7.0     9.0       0.201     477     4.09     7.0     10.0       0.248     495     4.18     14.0     12.0       0.248     495     4.18     14.0     12.0       0.248     495     4.18     14.0     12.0       0.248     495     4.18     14.0     12.0       0.248     495     4.14     10.0     8.0       0.258     512     6.04     19.3     23.3       0.228     512     6.04     19.3     23.3       0.228     512     6.04     19.9     12.3	0AC0030	0.260	214	4.05	23.0	16.0	514	1650
0.212     477     4.08     13.0     10.0       0.214     495     4.28     13.0     11.0       0.259     495     4 08     10.0     11.0       0.293     512     6.44     22.0     18.7       0.274     512     6.81     23.0     24.3       0.208     495     4.27     7.0     9.0       0.201     477     4.09     7.0     10.0       0.248     495     4.18     14.0     12.0       0.213     495     4.14     10.0     8.0       0.256     512     6.04     19.3     23.3       0.228     512     6.04     19.3     23.3	10AC0031	0.271	477	4.04	20.0	18.0	117	1650
0.214         495         4.28         13.0         11.0           0.259         495         4.05         28.0         19.0           0.256         477         4.08         10.0         11.0           0.293         512         6.44         22.0         18.7           0.274         512         6.81         23.0         24.3           0.208         495         4.27         7.0         9.0           0.201         477         4.09         7.0         10.0           0.248         495         4.18         14.0         12.0           0.213         495         4.14         10.0         8.0           0.262         512         6.04         19.3         21.3           0.228         512         6.04         19.3         21.3           0.228         512         6.04         19.3         23.3	0AC0032	0.212	417	4.08	13.0	10.0	477	1650
0.259         495         4.05         28.0         19.0           0.256         477         4.08         10.0         11.0           0.293         512         6.44         22.0         18.7           0.274         512         6.81         23.0         24.3           0.208         495         4.27         7.0         9.0           0.201         477         4.09         7.0         10.0           0.248         495         4.18         14.0         12.0           0.213         495         4.14         10.0         8.0           0.262         512         6.84         19.3         21.3           0.228         512         6.04         19.3         21.3           0.228         512         6.04         19.3         21.3	0AC0033	0.214	495	4.28	13.0	11.0	495	1650
0.256     477     4.08     10.0     11.0       0.293     512     6.44     22.0     18.7       0.274     512     6.81     23.0     24.3       0.278     512     6.13     16.7     17.0       0.208     495     4.27     7.0     9.0       0.201     477     4.09     7.0     10.0       0.248     495     4.18     14.0     12.0       0.213     495     4.14     10.0     8.0       0.262     512     6.83     18.7     21.3       0.228     512     6.04     19.3     23.0       0.228     512     6.04     19.3     23.0       0.248     4.14     10.0     8.0       0.258     512     6.04     19.3     23.0	0.AC0034	0.259	495	4.05	28.0	19.0	495	1650
0.293     512     6.44     22.0     18.7       0.274     512     6.81     23.0     24.3       0.278     512     6.13     16.7     17.0       0.208     495     4.27     7.0     9.0       0.201     477     4.09     7.0     10.0       0.248     495     4.18     14.0     12.0       0.213     495     4.14     10.0     8.0       0.262     512     6.83     18.7     21.3       0.228     512     6.04     19.3     23.0       0.228     512     6.04     19.3     23.0       0.24     10.0     12.0	0AC0035	0.256	477	4.08	10.0	11.0		1650
0.274     512     6.81     23.0     24.3       0.278     512     6.13     16.7     17.0       0.208     495     4.27     7.0     9.0       0.201     477     4.09     7.0     10.0       0.248     495     4.18     14.0     12.0       0.213     495     4.14     10.0     8.0       0.262     512     6.83     18.7     23.3       0.228     512     6.04     19.3     23.0       0.278     512     6.04     19.3     23.0	0AC0036	0.293	512	6.44	22.0	18.7		1660
0.278         512         6.13         16.7         17.0           0.208         495         4.27         7.0         9.0           0.201         477         4.09         7.0         10.0           0.248         495         4.18         14.0         12.0           0.213         495         4.14         10.0         8.0           0.262         512         6.83         18.7         21.3           0.228         512         6.04         19.3         23.0           0.228         512         6.04         19.3         23.0	0AC0037	0.274	512	6.81	23.0	24.3		1663
0.208         495         4.27         7.0         9.0           0.201         477         4.09         7.0         10.0           0.248         495         4.18         14.0         12.0           0.213         495         4.14         10.0         8.0           0.262         512         6.83         18.7         21.3           0.228         512         6.04         19.3         23.0           0.228         512         6.04         19.3         23.0	0AC0038	0.278	512	6.13	16.7	17.0		1663
0.201     477     4.09     7.0     10.0       0.248     495     4.18     14.0     12.0       0.213     495     4.14     10.0     8.0       0.262     512     6.83     18.7     21.3       0.228     512     6.04     19.3     23.0       0.228     512     6.04     19.3     23.0	0AC0039	0.208	495	4.27	7.0	9.0	495	1650
0.248 495 4.18 14.0 12.0 0.213 495 4.14 10.0 8.0 0.262 512 6.83 18.7 21.3 0.228 512 6.04 19.3 23.0	0AC0040	0.201	477	4.09	7.0	0.01	477	1650
0.262 512 6.83 18.7 21.3 0.228 512 6.04 19.3 23.0	0ACC 341	0.248	495	4.18	14.0	12.0	495	1650
0.262 512 6.83 18.7 0.228 512 6.04 19.3	0AC0042	0.213	495	4.14	10.0	<b>8</b> .0	495	1650
0.228 512 6.04 19.3	0AC0143	0.262	512	6.83	18.7	21.3		1660
001 707 (13	10AC0044	0.228	512	90.9	19.3	23.0		1660
0.539 312 6.04 19.0								

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CSTA-ARL/MD JOINT EPPORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.30 AP M2 DATABASE MODULE 3: MATERIALS PROPERTIES

This   BRN   NUM   FT-LB   FFT-LB   BRN   BRN   C   C   C   C   C   C   C   C   C	30AC0049 30AC0048 30AC0049 30AC0050		BRN	MIN	[FT-LB]	IFT-LB	(BRN)	IDEG PI
0.244         488         6.10         18.7         25.7           0.248         510         6.10         17.7         19.7           0.257         490         6.10         17.7         19.7           0.257         492         6.63         13.0         17.7           0.257         492         6.63         13.0         17.7           0.257         492         6.63         13.0         17.7           0.257         492         6.63         13.0         17.7           0.257         492         6.63         13.0         17.7           0.258         492         4.31         14.0         17.0           0.259         566         10.19         11.3         15.0           0.250         514         4.14         9.0         10.3           0.256         514         4.14         9.0         10.3           0.273         514         4.14         9.0         10.3           0.274         495         6.51         11.3         11.7           0.284         495         4.14         9.0         10.0           0.295         514         4.14         9.0         10.0	30AC0048 30AC0048 30AC0049 30AC0050	INI	•				•	
0.248         \$10         6.10         17.7         19.7           0.257         490         6.05         11.7         14.0           0.241         486         6.63         13.0         17.7           0.257         492         6.63         13.0         17.7           0.257         492         6.63         13.0         17.7           0.250         477         4.21         9.0         10.0           0.250         506         10.13         14.7         16.3           0.250         506         10.13         14.0         17.7           0.250         506         10.13         14.0         17.7           0.250         514         4.14         9.0         10.0           0.254         594         6.31         14.0         17.7           0.256         514         4.14         9.0         10.0           0.272         514         4.14         9.0         10.0           0.284         495         6.51         11.3         10.7           0.295         416         6.54         10.3         11.7           0.206         514         4.35         11.3         1	30AC0048 30AC0049 30AC0050 30AC0051	0.284	488	6.10	18.7	25.7		1660
0.252         490         6.05         11.7         14.0           0.241         486         6.63         13.0         17.7           0.257         492         6.63         13.0         17.7           0.267         495         4.35         10.0         10.0           0.287         477         4.21         9.0         10.0           0.280         477         4.21         9.0         10.0           0.250         506         10.19         11.3         13.0           0.250         477         4.21         9.0         10.0           0.250         514         4.09         13.0         10.0           0.244         495         6.51         11.0         10.3           0.246         514         4.09         13.3         11.7           0.246         515         10.06         16.3         11.7           0.246         516         6.51         11.3         10.7           0.246         516         6.54         10.3         11.7           0.246         516         6.54         10.3         11.7           0.247         4.96         6.51         11.3	30AC0050 30AC0050	0.248	510	6.10	17.71	19.7		1660
0.241         486         6.63         13.0         17.7           0.287         492         6.63         13.0         17.7           0.287         492         6.63         13.0         17.7           0.287         477         4.21         9.0         10.0           0.280         477         4.21         9.0         10.0           0.280         502         6.21         11.3         13.0         17.7           0.280         504         6.31         14.0         10.0         10.0         10.0           0.286         514         4.09         11.3         10.0	0AC0050 0AC0051	0.252	490	6.05	11.7	14.0		1660
0.257         492         663         13.0         17.7           0.267         502         6.31         13.0         17.7           0.287         4.35         10.0         10.0           0.280         477         6.31         14.7         16.3           0.280         477         6.31         14.7         16.3           0.280         477         4.21         9.0         18.0           0.280         506         10.19         11.3         17.7           0.280         514         4.14         9.0         10.0           0.244         495         6.51         11.0         10.3           0.245         514         4.09         13.0         10.3           0.246         495         6.51         11.3         10.7           0.249         514         4.09         13.0         10.3           0.240         515         10.06         16.7         10.3           0.250         495         4.16         9.0         11.3           0.250         495         4.16         9.0         11.3           0.250         514         4.33         11.3         11.3	30AC0051	0.241	486	6.63	13.0	17.7		1660
0.218         495         4.35         10.0         10.0           0.267         477         6.21         11.3         11.0         10.0           0.220         477         6.21         14.7         16.3         17.0         18.3         18.3         18.3         18.3         18.3         18.3         18.3         18.3         18.3         18.3         18.3         18.3         18.3         18.3         18.3         18.3         18.7         20.3         20.3         20.3         20.3         20.3         20.3         20.3         20.3         20.3<	C 9000 V V	0.257	492	6.63	13.0	17.7		1660
0.267         502         6.21         12.3         17.0           0.287         477         6.31         14.7         16.3           0.220         477         4.21         9.0         18.0           0.250         506         10.19         11.3         13.0           0.266         514         4.14         9.0         10.0           0.273         514         4.09         11.3         10.0           0.274         495         6.51         11.0         10.3           0.275         515         10.06         16.7         10.3           0.286         515         10.06         16.7         10.3           0.290         516         6.54         10.3         11.7           0.200         516         6.54         10.3         11.7           0.200         516         6.54         10.3         11.7           0.200         516         6.54         10.3         11.7           0.200         516         6.74         16.3         11.3           0.200         517         6.14         3.3         11.3           0.200         516         6.14         4.33	750000	0.218	495	4.35	10.0	10.0	495	1650
0.287         477         6.31         14.7         16.3           0.250         477         6.31         14.7         16.3           0.255         596         10.19         11.3         13.0           0.255         494         6.31         14.0         17.7           0.266         514         4.14         9.0         11.3           0.273         514         4.09         11.3         10.0           0.244         95         6.51         11.0         10.3           0.222         505         6.51         11.3         10.3           0.249         514         6.54         10.3         10.7           0.250         515         10.06         16.7         20.7           0.250         515         10.6         16.7         20.7           0.250         515         4.35         13.3         10.7           0.250         514         4.33         15.0         11.3           0.250         514         4.33         15.0         10.0           0.270         514         4.33         15.0         10.0           0.270         514         4.33         15.0	0AC0053	0.267	502	6.21	12.3	17.0		1660
0.220         477         4.21         9.0         8.0           0.256         514         4.14         9.0         11.3         13.0           0.256         514         4.14         9.0         10.0         10.0           0.273         514         4.14         9.0         10.0         10.0           0.222         502         6.51         11.0         10.3         11.7           0.226         515         10.06         16.7         20.7         20.7           0.226         515         10.06         16.7         20.7         20.7           0.226         515         10.06         16.7         20.7         10.3           0.236         495         4.35         13.3         10.7         20.7           0.236         495         4.16         9.0         11.3         20.3           0.240         514         4.33         15.0         11.3         20.3           0.256         514         4.33         15.0         10.3         20.3           0.256         514         4.33         15.0         10.3         20.3           0.256         514         4.33         15.0         <	10AC0054	0.287	477	6.31	14.7	16.3		1660
0.250         506         10.19         11.3         13.0           0.255         494         6.31         14.0         17.7           0.266         514         4.14         9.0         10.0           0.273         514         4.09         13.0         16.0           0.249         514         4.09         11.0         10.3           0.222         502         6.51         11.3         10.3           0.249         515         10.06         16.7         20.7           0.250         490         6.67         16.3         18.7           0.234         495         4.16         9.6         11.7           0.236         495         4.16         9.6         11.3           0.239         4.77         6.14         21.3         20.3           0.240         514         4.33         15.0         11.0           0.256         514         4.33         15.0         11.0           0.256         514         4.33         15.0         12.0           0.256         514         4.33         15.0         10.3           0.256         514         4.33         15.0	10 A C 00 5 5	0.220	417	4.21	9.0	8.0	411	1650
0.255         494         6.31         14.0         17.7           0.266         514         4.14         9.0         10.0           0.273         514         4.14         9.0         10.0           0.274         495         6.51         11.0         10.3           0.249         514         6.54         10.3         11.7           0.206         515         10.06         16.7         20.7           0.206         515         10.06         16.7         20.7           0.206         515         10.06         16.7         20.7           0.207         495         4.16         9.0         11.3           0.208         4.77         6.14         9.0         11.3           0.209         512         10.44         9.0         11.3           0.200         512         4.16         9.0         11.3           0.200         514         4.33         15.0         12.0           0.206         514         4.33         15.0         12.0           0.206         514         4.33         15.0         12.0           0.206         514         4.33         15.0         1	10AC0056	0.250	206	10.19	11.3	13.0		1660
0.266         514         4.14         9.0         10.0           0.273         514         4.09         13.0         16.0           0.244         495         6.51         11.0         10.3           0.249         514         6.54         10.3         11.7           0.250         490         6.67         16.3         11.7           0.250         490         6.67         16.3         11.7           0.250         490         6.67         16.3         11.7           0.250         490         6.67         16.3         11.7           0.250         490         6.67         16.3         11.7           0.250         495         4.16         9.0         11.3           0.250         512         10.44         9.0         11.3           0.260         512         10.44         9.0         11.3           0.260         514         4.33         15.0         11.3           0.260         514         4.33         15.0         12.0           0.274         523         4.98         13.3         8.7           0.280         477         4.16         11.0         9.0	0AC0057	0.255	464	6.31	14.0	17.7		1660
0.273     \$14     4.09     13.0     16.0       0.244     495     6.51     11.0     10.3       0.225     502     6.51     11.1     10.3       0.206     514     6.54     10.3     11.7       0.206     515     10.06     16.7     20.7       0.234     495     4.35     13.3     10.7       0.234     495     4.35     13.3     10.7       0.236     512     10.44     9.6     11.3       0.239     4.77     6.14     21.3     20.3       0.260     512     6.58     9.6     11.3       0.256     514     4.33     15.0     12.0       0.256     514     4.33     15.0     12.0       0.260     514     4.33     15.0     12.0       0.256     514     4.35     15.0     12.0       0.274     523     4.98     13.3     8.0       0.256     518     5.01     13.3     8.7       0.260     518     5.01     13.3     8.7       0.274     4.16     10.0     10.0       0.203     495     4.16     11.0     10.0       0.203     477     6.14 <td< td=""><td>10AC0058</td><td>0.266</td><td>514</td><td>4.14</td><td>9.0</td><td>10.0</td><td>514</td><td>1650</td></td<>	10AC0058	0.266	514	4.14	9.0	10.0	514	1650
0.244       495       6.51       11.0       10.3         0.222       502       6.51       11.3       10.3         0.249       514       6.54       10.3       11.7         0.250       490       6.67       16.3       11.7         0.234       495       4.16       9.6       10.0         0.230       495       4.16       9.6       10.0         0.234       495       4.16       9.6       10.0         0.230       477       6.14       9.0       11.3         0.220       512       10.44       9.0       11.3         0.233       477       6.14       21.3       20.3         0.246       514       4.33       15.0       12.0         0.256       514       4.33       15.0       12.0         0.256       514       4.33       15.0       12.0         0.258       514       4.35       15.0       17.0         0.258       514       4.35       15.0       17.0         0.258       4.77       4.16       15.0       10.0         0.250       477       4.16       15.0       10.0	30AC0059	0.273	514	4.09	13.0	16.0	514	1650
0.222       502       6.51       11.3       10.3         0.249       514       6.54       10.3       11.7         0.250       490       6.67       16.3       11.7         0.234       495       4.35       13.3       10.7         0.210       495       4.35       13.3       10.7         0.220       512       10.44       9.0       11.3         0.220       512       10.44       9.0       11.3         0.220       512       10.44       9.0       11.3         0.220       514       4.33       15.0       11.3         0.260       514       4.33       15.0       12.0         0.260       514       4.33       15.0       12.0         0.261       514       4.33       15.0       17.0         0.262       514       4.33       15.0       17.0         0.263       4.77       4.16       13.0       17.0         0.274       523       4.98       13.3       8.0         0.272       4.77       4.16       11.0       10.0         0.203       495       4.14       11.0       9.0	0900V0	0.244	495	6.51	11.0	10.3		1660
0.249         514         6.54         10.3         11.7           0.250         490         667         16.3         18.7           0.234         490         667         16.3         18.7           0.234         495         4.16         9.6         11.3           0.220         512         10.44         9.0         11.3           0.220         512         10.44         9.0         11.3           0.240         512         6.44         21.3         20.3           0.256         514         4.33         15.0         11.3           0.256         514         4.33         15.0         12.0           0.256         514         4.33         15.0         12.0           0.256         514         4.33         15.0         12.0           0.256         514         4.33         15.0         12.0           0.268         4.77         4.16         13.0         11.3           0.272         4.77         4.16         15.0         21.0           0.272         4.77         4.16         15.0         20.7           0.272         4.77         4.16         15.0 <td< td=""><td>WAC0061</td><td>0.222</td><td>502</td><td>6.51</td><td>11.3</td><td>10.3</td><td></td><td>1660</td></td<>	WAC0061	0.222	502	6.51	11.3	10.3		1660
0.206         515         10.06         16.7         20.7           0.234         495         4.35         13.3         10.7           0.210         495         4.16         9.6         11.3           0.220         512         10.44         9.0         11.3           0.220         512         10.44         9.0         11.3           0.283         477         6.14         21.3         20.3           0.260         514         4.33         15.0         12.0           0.256         514         4.33         15.0         12.0           0.260         514         4.33         15.0         12.0           0.272         522         6.58         9.7         10.3           0.263         4.77         4.16         13.0         17.0           0.274         522         6.58         9.7         10.3           0.275         4.77         4.16         13.0         17.0           0.276         518         5.01         13.3         8.7           0.278         4.77         4.16         11.0         9.0           0.203         4.77         4.16         11.0	0AC0062	0.249	514	6.54	10.3	11.7		1660
0.250     490     6.67     16.3     18.7       0.234     495     4.16     9.6     10.0       0.220     512     10.44     9.0     11.3       0.223     477     6.14     21.3     20.3       0.260     514     4.33     15.0     12.0       0.256     514     4.33     15.0     12.0       0.272     522     6.58     9.7     10.3       0.273     522     6.58     9.7     10.3       0.274     522     6.58     9.7     10.3       0.275     524     4.33     15.0     17.0       0.276     514     4.85     11.3     8.7       0.272     477     4.16     11.0     9.0       0.273     495     4.14     11.0     9.0       0.274     523     4.14     11.0     9.0       0.273     477     4.16     11.0     9.0       0.203     495     4.06     8.0     29.0       0.204     477     4.16     11.0     10.0       0.203     477     4.16     11.2     11.3       0.240     511     7.69     18.0     29.7       0.220     477     2.44 <td>10AC0063</td> <td>0.206</td> <td>515</td> <td>10.06</td> <td>16.7</td> <td>20.7</td> <td></td> <td>1660</td>	10AC0063	0.206	515	10.06	16.7	20.7		1660
0.234         495         4.35         13.3         10.7           0.210         495         4.16         9.6         10.0           0.220         512         10.44         9.0         11.3           0.283         477         6.14         21.3         20.3           0.260         514         4.33         15.0         12.0           0.268         477         4.16         13.0         17.0           0.272         522         6.58         9.7         10.3           0.268         477         4.16         13.0         17.0           0.274         523         4.98         13.3         8.0           0.274         523         4.98         13.3         8.0           0.274         523         4.98         13.3         8.0           0.275         477         4.16         13.0         21.0           0.276         477         4.16         11.0         9.0           0.203         495         4.06         8.0         29.0           0.204         477         4.16         11.3         11.3           0.203         477         4.16         12.3         14.0 <td>10 A C 0064</td> <td>0.250</td> <td>490</td> <td>6.67</td> <td>16.3</td> <td>18.7</td> <td></td> <td>1660</td>	10 A C 0064	0.250	490	6.67	16.3	18.7		1660
0.210         495         4.16         9.6         10.0           0.220         512         10.44         9.0         11.3           0.220         512         6.58         9.3         8.7           0.260         514         4.33         15.0         12.0           0.256         514         4.33         15.0         12.0           0.268         477         4.16         13.0         17.0           0.258         514         4.85         15.7         10.3           0.260         518         5.01         13.3         8.0           0.274         523         4.98         13.3         8.0           0.274         523         4.98         13.3         8.0           0.274         523         4.98         13.3         8.0           0.275         477         4.16         15.0         21.0           0.206         518         5.01         13.3         8.7           0.208         4.77         4.16         11.0         9.0           0.208         4.77         4.16         18.0         29.7           0.247         514         11.3         11.3         11.3 <td>10AC0065</td> <td>0.234</td> <td>495</td> <td>4.35</td> <td>13.3</td> <td>10.7</td> <td>495</td> <td>1580</td>	10AC0065	0.234	495	4.35	13.3	10.7	495	1580
0.220     \$12     10.44     9.0     11.3       0.293     477     6.14     21.3     20.3       0.260     \$14     4.33     15.0     12.0       0.256     \$14     4.33     15.0     12.0       0.272     \$22     6.58     9.7     10.3       0.268     477     4.16     13.0     17.0       0.274     \$23     4.98     13.3     8.0       0.275     \$514     4.85     15.7     11.3       0.276     \$18     \$0.1     13.3     8.7       0.276     \$77     4.16     11.0     9.0       0.272     \$477     4.16     11.0     9.0       0.273     \$495     4.14     11.0     9.0       0.274     \$477     \$4.16     11.0     9.0       0.283     \$477     \$4.16     11.0     9.0       0.284     \$477     \$6.14     12.3     11.3       0.293     \$477     \$6.14     12.3     11.3       0.247     \$5.83     \$2.10     \$2.7       0.254     \$4.77     \$2.44     11.3     18.0       0.254     \$4.77     \$2.44     11.3     11.3       0.258     \$4.77     \$2	0AC0066	0.210	495	4.16	9.6	10.0	495	1650
0.293     477     6.14     21.3     20.3       0.260     514     4.33     15.0     12.0       0.256     514     4.33     15.0     12.0       0.256     514     4.33     15.0     12.0       0.258     514     4.16     13.0     17.0       0.258     514     4.85     15.7     11.3       0.274     523     4.98     13.3     8.7       0.260     518     5.01     13.3     8.7       0.272     477     4.16     11.0     9.0       0.272     495     4.14     11.0     9.0       0.203     495     4.14     11.0     9.0       0.203     495     4.16     11.0     9.0       0.203     477     4.16     10.0     10.0       0.203     477     4.16     11.0     9.0       0.184     477     6.14     12.3     11.3       0.254     511     7.69     18.0     16.0       0.254     511     7.69     18.0     16.0       0.254     477     2.74     28.0     18.0       0.258     477     2.44     11.3     11.3       0.258     477     2.44<	10 A C 00 67	0.220	512	10.44	9.0	11.3		1660
0.189         512         6.58         9.3         8.7           0.260         514         4.33         15.0         12.0           0.256         514         4.33         15.0         12.0           0.272         522         6.58         9.7         10.3           0.268         477         4.16         13.0         17.0           0.256         514         4.85         15.7         11.3           0.274         523         4.98         13.3         8.7           0.260         518         5.01         13.3         8.7           0.272         477         4.16         15.0         21.0           0.273         495         4.14         11.0         9.0           0.274         4.56         18.0         9.0         9.0           0.283         477         4.16         11.0         9.0           0.284         477         4.16         11.3         11.3           0.284         477         5.83         21.0         26.7           0.284         477         2.44         11.3         13.7           0.281         477         2.44         11.3         13.7 <td>10AC0068</td> <td>0.293</td> <td>477</td> <td>6.14</td> <td>21.3</td> <td>20.3</td> <td></td> <td>1660</td>	10AC0068	0.293	477	6.14	21.3	20.3		1660
0.260     514     4.33     15.0     12.0       0.256     514     4.33     15.0     12.0       0.272     522     6.58     9.7     10.3       0.268     477     4.16     13.0     17.0       0.258     514     4.85     15.7     11.3       0.274     523     4.98     13.3     8.7       0.276     477     4.16     15.0     21.0       0.272     477     4.16     11.0     9.0       0.203     495     4.06     8.0     9.0       0.204     477     4.16     11.0     9.0       0.203     477     4.16     11.0     9.0       0.218     477     4.16     11.0     9.0       0.254     511     7.69     18.0     10.0       0.254     511     7.69     18.0     16.0       0.247     512     5.89     13.0     18.0       0.258     477     2.74     11.3     13.7       0.258     477     2.44     11.3     13.7       0.258     477     2.44     11.3     13.7       0.258     477     2.44     11.3     14.3       0.298     477     2.44 </td <td>10 A C 00 69</td> <td>0.189</td> <td>512</td> <td>6.58</td> <td>9.3</td> <td>8.7</td> <td>-</td> <td>1660</td>	10 A C 00 69	0.189	512	6.58	9.3	8.7	-	1660
0.256     514     4.33     15.0     12.0       0.272     522     6.58     9.7     10.3       0.268     477     4.16     13.0     17.0       0.274     523     4.98     13.3     8.0       0.276     518     5.01     13.3     8.7       0.272     477     4.16     11.0     9.0       0.203     495     4.14     11.0     9.0       0.203     495     4.06     8.0     9.0       0.203     477     4.16     10.0     10.0       0.204     477     6.14     12.3     11.3       0.254     581     7.69     18.0     16.0       0.247     5.83     21.0     26.7       0.247     5.83     21.0     26.7       0.240     511     7.69     18.0     16.0       0.241     512     5.84     28.0     18.0       0.241     512     5.89     13.0     19.7       0.258     477     2.44     11.3     13.7       0.258     477     2.44     11.3     13.0       0.258     477     2.44     11.3     13.0       0.298     477     5.83     13.0     19.	10AC0070	0.260	514	4.33	15.0	12.0	514	1650
0.272     522     6.58     9.7     10.3       0.268     477     4.16     13.0     17.0       0.258     514     4.85     15.7     11.3       0.274     523     4.98     13.3     8.0       0.260     518     5.01     13.3     8.7       0.272     477     4.16     11.0     9.0       0.203     495     4.06     8.0     9.0       0.208     477     4.16     11.0     9.0       0.251     477     6.14     12.3     11.3       0.253     477     6.14     12.3     11.3       0.254     5.83     21.0     26.7       0.254     511     7.69     18.0     16.0       0.270     477     2.75     9.7     9.7       0.258     477     2.44     11.3     13.7       0.258     477     2.44     11.3     13.7       0.258     477     2.44     11.3     13.7       0.298     477     2.44     11.3     13.7       0.298     477     2.44     11.3     13.7       0.298     477     2.616     16.3     17.0       0.298     477     6.16     16.3<	10AC0071	0.256	514	4.33	15.0	12.0	\$14	1650
0.268     477     4.16     13.0     17.0       0.258     514     4.85     15.7     11.3       0.274     523     4.98     13.3     8.0       0.260     518     5.01     13.3     8.7       0.272     477     4.16     15.0     21.0       0.203     495     4.16     11.0     9.0       0.208     477     4.16     11.0     9.0       0.208     477     4.16     10.0     10.0       0.21     477     6.14     28.0     29.7       0.18     477     6.14     28.0     29.7       0.23     477     6.14     12.3     11.3       0.24     511     7.69     18.0     16.0       0.24     516     4.54     28.0     18.0       0.25     477     2.75     9.7     9.7       0.25     477     2.44     11.3     13.7       0.25     477     2.44     11.3     13.7       0.29     477     2.97     7.7     14.3       0.29     477     6.16     16.3     17.0       0.29     477     6.16     16.3     17.0       0.29     477     6.16 <td< td=""><td>10AC0072</td><td>0.272</td><td>522</td><td>6.58</td><td>9.7</td><td>10.3</td><td></td><td>1660</td></td<>	10AC0072	0.272	522	6.58	9.7	10.3		1660
0.256     \$14     4.85     15.7     11.3       0.274     \$23     4.98     13.3     8.0       0.260     \$18     \$501     13.3     8.7       0.228     495     4.14     11.0     9.0       0.203     495     4.14     11.0     9.0       0.203     477     4.16     10.0     10.0       0.251     477     4.16     10.0     10.0       0.253     477     6.14     28.0     29.7       0.293     477     6.14     12.3     11.3       0.247     \$14     12.3     11.3       0.247     \$14     12.3     11.3       0.254     \$11     7.69     18.0     16.0       0.254     \$16     4.54     28.0     18.0       0.258     477     2.75     9.7     9.7       0.258     477     2.44     11.3     13.7       0.298     477     2.97     7.7     14.3       0.298     477     6.16     16.3     17.0       0.298     477     6.16     16.3     17.0       0.298     477     6.16     16.3     17.0       0.298     477     6.16     16.3     17.0<	NAC0073	0.268	477	4.16	13.0	17.0		1650
0.274     523     4.98     13.3     8.0       0.260     518     5.01     13.3     8.7       0.272     477     4.16     11.0     9.0       0.228     495     4.14     11.0     9.0       0.203     495     4.06     8.0     9.0       0.204     477     4.16     10.0     10.0       0.251     477     6.14     28.0     29.7       0.254     511     7.69     18.0     16.0       0.254     511     7.69     18.0     16.0       0.254     516     4.54     28.0     18.0       0.254     516     4.54     28.0     18.0       0.254     517     2.75     9.7     9.7       0.258     477     2.75     9.7     9.7       0.258     477     2.44     11.3     13.7       0.251     512     5.89     13.0     19.7       0.298     457     6.16     16.3     17.0       0.298     457     6.16     16.3     17.0       0.298     457     6.16     16.3     17.0       0.298     457     6.16     16.3     17.0       0.298     458     18.0 <td>10 A C 00 74</td> <td>0.258</td> <td>\$14</td> <td>4.85</td> <td>15.7</td> <td>11.3</td> <td></td> <td>1564</td>	10 A C 00 74	0.258	\$14	4.85	15.7	11.3		1564
0.260         518         5.01         13.3         8.7           0.272         477         4.16         15.0         21.0           0.228         495         4.14         11.0         9.0           0.203         495         4.06         8.0         9.0           0.204         477         4.16         10.0         10.0           0.251         477         6.14         28.0         29.7           0.254         511         7.69         18.0         16.0           0.254         511         7.69         18.0         16.0           0.254         511         7.69         18.0         16.0           0.254         511         7.69         18.0         16.0           0.254         516         4.54         28.0         18.0           0.250         477         2.75         9.7         9.7           0.258         477         2.44         11.3         13.7           0.291         512         5.89         13.0         19.7           0.298         477         6.16         16.3         17.0	10AC0075	0.274	523	4.98	13.3	<b>8</b> .0		1567
0.272     477     4.16     15.0     21.0       0.228     495     4.14     11.0     9.0       0.203     495     4.14     11.0     9.0       0.208     477     4.16     10.0     10.0       0.251     477     6.14     28.0     29.7       0.188     477     6.14     12.3     11.3       0.254     511     7.69     18.0     16.0       0.247     516     4.54     28.0     18.0       0.220     477     2.75     9.7     9.7       0.258     477     2.44     11.3     13.7       0.241     512     5.89     13.0     19.7       0.298     6.16     16.3     17.0       0.298     6.16     16.3     17.0       0.298     6.16     16.3     17.0	10AC0076	0.260	518	5.01	13.3	8.7		1562
0.228         495         4.14         11.0         9.0           0.203         495         4.06         8.0         9.0           0.208         477         4.16         10.0         10.0           0.251         477         6.14         28.0         29.7           0.184         477         6.14         12.3         11.3           0.293         477         5.83         21.0         26.7           0.247         516         4.54         28.0         18.0           0.247         516         4.54         28.0         18.0           0.220         477         2.75         9.7         9.7           0.258         477         2.44         11.3         13.7           0.241         512         5.89         13.0         19.7           0.298         477         2.97         7.7         14.3           0.298         6.16         16.3         17.0           0.298         6.16         16.3         17.0	10AC0077	0.272	477	4.16	15.0	21.0	11.1	1650
0:203         495         4.06         8.0         9.0           0.208         477         4.16         10.0         10.0           0.251         477         6.14         28.0         29.7           0.184         477         6.14         12.3         11.3           0.293         477         5.83         21.0         26.7           0.24         511         7.69         18.0         16.0           0.240         477         2.75         9.7         9.7           0.258         477         2.44         11.3         13.7           0.241         512         5.89         13.0         19.7           0.241         512         5.89         13.0         19.7           0.298         477         6.16         16.3         17.0           0.298         6.16         16.3         17.0         6.16	10AC0078	0.228	495	4.14	11.0	9.0	495	1650
0.208         477         4.16         10.0         10.0           0.251         477         6.14         28.0         29.7           0.188         477         6.14         12.3         11.3           0.293         477         5.83         21.0         26.7           0.254         511         7.69         18.0         16.0           0.247         516         4.54         28.0         18.0           0.258         477         2.75         9.7         9.7           0.241         512         5.89         13.0         19.7           0.241         512         2.97         7.7         14.3           0.298         6.77         6.16         16.3         17.0           0.298         6.77         6.16         16.3         17.0	10AC0079	0:203	495	4.06	8.0	9.0	495	1650
0.251     477     6.14     28.0       0.188     477     6.14     12.3       0.293     477     6.14     12.3       0.254     511     7.69     18.0       0.220     477     2.75     9.7       0.258     477     2.44     11.3       0.241     512     5.89     13.0       0.298     477     6.16     16.3       0.298     477     6.16     16.3	10AC0080	0.208	477	4.16	10.0	10.0	417	1650
0.188     477     6.14     12.3       0.293     477     5.83     21.0       0.254     511     7.69     18.0       0.247     516     4.54     28.0       0.220     477     2.75     9.7       0.241     512     5.89     13.0       0.241     512     5.89     13.0       0.298     477     6.16     16.3       0.298     477     6.16     16.3	10AC0081	0.251	477	6.14	28.0	29.7		1660
0.293     477     5.83     21.0       0.254     511     7.69     18.0       0.247     516     4.54     28.0       0.220     477     2.75     9.7       0.28     477     2.44     11.3       0.241     512     5.89     13.0       0.298     477     6.16     16.3       0.298     477     6.16     16.3       0.298     477     6.16     16.3	10AC0082	0.188	477	6.14	12.3	11.3		1660
0.254     511     7.69     18.0       0.247     516     4.54     28.0       0.220     477     2.75     9.7       0.258     477     2.44     11.3       0.241     512     5.89     13.0       0.211     512     2.97     7.7       0.298     477     6.16     16.3       0.298     477     6.16     16.3	10AC0083	0.293	477	5.83	21.0	26.7		1660
0.247     516     4.54     28.0       0.220     477     2.75     9.7       0.258     477     2.44     11.3       0.241     512     5.89     13.0       0.211     512     2.97     7.7       0.298     477     6.16     16.3       0.298     477     6.16     16.3	10AC0084	0.254	511	7.69	18.0	16.0		1688
0.220     477     2.75     9.7       0.258     477     2.44     11.3       0.241     512     5.89     13.0       0.211     512     5.89     13.0       0.298     477     6.16     16.3       0.298     477     6.16     16.3       0.298     477     6.16     16.3	10AC0085	0.247	516	4.54	28.0	18.0		1573
0.258     477     2.44     11.3       0.241     512     5.89     13.0       0.211     512     5.97     7.7       0.298     477     6.16     16.3       0.298     677     6.16     16.3	10AC0086	0.220	477	2.75	9.7	9.7		1660
0.241     512     5.89     13.0       0.211     512     2.97     7.7       0.298     477     6.16     16.3       0.298     60.3     60.3     60.3	10AC0087	0.258	477	2.44	11.3	13.7		1660
0.211 512 2.97 7.7 0.298 477 6.16 16.3	10 A C 00 88	0.241	512	5.89	13.0	19.7		1660
0.298 477 6.16 16.3	10AC0089	0.211	512	2.97	7.7	14.3		1660
100 100	10AC0090	0.298	477	91.9	16.3	17.0		1660
0.239 502 2.97 9.3	0AC0091	0.259	502	2.97	9.3	9.7		1660

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTHER: CALONA AP M2
DATABASE MODILLE 4: BALLISTIC PERPORMANCE

P = PASS F = FAIL

A = ACCEPTANCE D = DEVELOPMENT FA = FIRST ARTICLE P = PRIMARY R = RETEST

	TEST	SAMPLE		CNI	PAIL	·		ā	ACT BI ATTE		ian day	PASS	VEL
ARL/MD ID	[A/D/FA]	[P/R]	RECORD	DATE	RECORD	(NOM)	PROJECTILE	(DEG)		[FT/SEC]	PTSEC	[P/F]	[FT/SEC]
30AC0001	<b>V</b>		90001614	10/30/90		SIX	CAL30APM2	8	0.297	2510	2545	<b>a.</b>	35
30AC0002	<	۵.	90001615	10/31/90		SIX	CAL30APM2	8	0.188	1811	2021	۵.	210
30AC0003	<	۵.,	90001616	10/31/90		SIX	CAL30APM2	8	0.249	2231	2293	۵,	62
30AC0004	< ⋅	<b>6.</b> (	90001636	11/01/90		XIS	CAL30APM2	2	0.270	2357	2421	<b>0.</b> , 1	<b>3</b> ;
30AC0005	< •	<b>2.</b> , g	90001692	11/26/90		XIX	CALSOAPM2	2 2	0.229	2105	7234	<b>2.</b> a	129
30 A C 00007	< <	<b>.</b> a	90001783	01/12/91		XIX	CALSOAPM2	2 2	0.20	2403	2440	<b>.</b> c	2 5
30AC0008	: <	. a.	91000009	01/22/91		XIX	CAL30APM2	8	0.170	1682	1820	, <u>a</u> ,	138
30AC0009	<	۰.	91000030	01/12/91		SIX	CAL30APM2	8	0.192	1850	1936	<b></b>	98
30AC0010	<	۵,	91000031	01/12/91		XIX	CAL30APM2	2	0.253	2255	2380	۵.	125
30AC0011	<	۵.	91000032	01/12/91		SIX	CAL30APM2	8	0.293	2488	2518	۵,	2
30AC0012	< <	<b>a</b> . a	91000071	01/15/91		XIS	CAL30APM2	2 2	0.243	2194	22 <b>88</b>	<b>a.</b> a	<b>2</b>
30AC0014	<	, <u>a</u>	91000149	02/27/91		XIS	CAL30APM2	2	0.233	2131		. a	180
30AC0015	: <	, Δ,	91000288	02/21/91		XIX	CAL30APM2	8	0.236	2150	2318	. <b>a.</b> ,	168
30AC0016	<	۵,	91000292	02/21/91		XIS	CAL30APM2	8	0.243	2194	2375	۵.	8
30AC0017	<	<b>~</b>	91000295	02/21/91		SIX	CAL30APM2	8	0.236	2150	2362	۵,	212
30AC0018	<	۵.	91000297	02/27/91		XIX	CAL30APM2	8	0.244	2201	2349	۵.	<b>\$</b> 71
30AC0019	<	۵.	91000300	02/21/91		SIX	CAL30APM2	8	0.184	1791	2076	۵.	285
30AC0020	<	۵,	91000304	02/21/91		SIX	CAL30APM2	8	0.250	2237	2495	۵.	258
30AC0021	< ∙	<b>a.</b> 1	91000343	02/21/91		XIX	CAL30APM2	2	0.247	2219	2375	<b>a.</b> 1	156
30AC0022	< ∙	، ،	91000376	02/28/91		XIX	CAL30APM2	<b>R</b> :	0.306	2559	2597	۱ بھ	<b>88</b>
30AC0023	< ∙	a., (	91000378	02/27/91		XIX	CAL30APM2	<b>R</b> 8	0.289	2465	25.5	B., 6	9 5
30 A C0024	< <	۵ م	91000386	16/17/70		YIS	CALSOAFM2	3 5	0.202	1761	5761	<b>.</b> , a	503
30AC0026	< <	. a	91000398	02/27/91		XIX	CAL30APM2	2 2	0.189	1824	2025	. 6	201
30AC0027	:	. <b>a</b> .	91000411	02/27/91		SIX	CAL30APM2	8	0.209	1971	2171	<b>.</b>	200
30AC0028	<	۵.	91000412	02/26/91		SIX	CAL30APM2	8	0.252	2249	2380	_	131
30AC0029	<	۵.	91000413	02/26/91		SIX	CAL30APM2	2	0.242	2188	2374	۵.	186
30AC0030	<	<b>a.</b> 1	91000414	02/26/91		SIX	CAL30APM2	<b>2</b>	0.260	2298	2491	۰.	193
30AC0031	< ⋅	۰. ۱	91000415	02/26/91		XIX	CAL30APM2	2	0.271	2363	2582	<b>a.</b> (	219
30AC0032	< <	<b>.</b> , o	91000416	16/12/20		X12	CALSOAPM2	3 8	0.212	3006	2121	۵, ۵	129
30AC0034	<	۰.	91000429	02/27/91		XIX	CAL30APM2	2 2	0.259	2292	26.05	. a	¥ 7 1
30AC0035	<	<u>۔</u>	91000446	03/08/51		XIX	CAL30APM2	2	0.256	2274	2384	<u>م</u>	91
30AC0036	<	۵.	91000466	03/08/91		XIX	CAL30APM2	8	0.293	2488	2569	۵,	=
30AC0037	<	۵.	91000467	03/08/91		SIX	CAL30APM2	8	0.274	2380	2512	۵,	132
30AC0038	<	۵.	91000558	07/11/91		SIX	CAL30APM2	2	0.278	2403	2508	۵,	105
30AC0039	<	۵.	91000699	16/10/50		SIX	CAL30APM2	2	0.208	1964	2200	۵.	236
30AC0040	<	۵.	91000700	05/07/91		SIX	CAL30APM2	2	0.201	1915	2120	۵.	205
30AC0041	<	<b>a.</b> 1	91000701	05/07/91		SIX	CAL30APM2	2	0.248	2225	2405	٠.	180
30AC0042	< ∙	<b>0.</b> 1	91000702	16/20/50		SIX	CAL30APM2	2	0.213	2661	2205	<b>a.</b> (	207
30AC0043	< ⋅	<b>a.</b> (	91000741	05/08/91		XIX	CAL30APM2	<u>유</u>	0.262	2310	2429	<b>a</b> . 1	611
30AC0044	< ∙	<b>a.</b> (	91000793	05/07/91		XIX	CAL30APM2	2	0.228	2098	2298	<b>a</b> . (	200
30AC0045	< ∙	<b>D.</b> , (	91000799	05/07/91		SIX	CAL30APM2	유 :	0.239	2169	2305	<b>a.</b> (	136
30AC0046	<	۵.	91000884	06/03/91		XIX	CAL30APM2	2	0.230	2111	2280	<u>.</u>	169

CSTA-ARI/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.30 AP M2
DATABASE MODULE 4: BALLISTIC PERFORMANCE

	CSTA-ARL BALLISTIC PROJECTII	CSTA-ARL/MD JOINT EFFOR' BALLISTIC PERFORMANCE OF PROJECTIJ G. CAL A 20 AP M2	CSTA – ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTH H. CALL 6 26 AP M2	THE IMPROVOR PLATE M	VEMENT OF THE (ATERIALS	THE			ACCEPTANCE DEVELOPMENT	. 8			
	DATABASE	MODULE 4:	FROJECTILE: UAL 839 AF M2 DATABASE MODULE 4: BALLISTIC PERFORMANCE	ERFORMAN	CE			ra = riksi A P = PRIMARY R = RETEST	MARY TEST	23	<u> </u>	= PASS = PAIL	
ARL/MD ID	TEST PURPOSE [A/D/FA]	SAMPLE PRIM/RET [P/R]	PIRING RECORD	FIRING DATE	FAIL FIRING RECORD	TEST [NUM]	PROJECTILE	OBL	ACT PLATE TH [IN]	REQ VEL [FT/SEC]	ACT VEL [PT/SEC]	PASS PAIL [P/F]	VEL DIPP [PTSEC]
30AC0047	•	d.	91000886	05/23/91	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	XIX	CALSOAPM2	S	0 284	2417	2631		70
30AC0048	<	. <b>a</b> .	91000\$87	05/23/91		XIX	CAL30APM2	2 8	0.248	2225	2435	. 2.	210
30AC0049	FA		91000891	05/23/91		SIX	CAL30APM2	8	0.252	2249	2342	. <b>6</b> .	93
30AC0050	PA		91000892	06/04/91		XIS	CAL30APM2	30	0.241	2181	2309	۵.	128
30AC0051	<	۵.	91000897	05/23/91		SIX	CAL30APM2	8	0.257	2280	2435	۵.	155
30AC0052	<	<b>6.</b> ,	91000967	06/07/91		XIX	CAL30APM2	98	0.218	2032	2165	۵.	133
30AC0053	<	<u>a</u>	91000989	06/07/91		XIX	CAL30APM2	30	0.267	2340	2437	۵.	97
30AC0054	<	۵.	91001007	06/04/91		XIX	CAL30APM2	8	0.287	2454	25152	۵.	61
30AC0055	<	۵.,	91001063	16/90/90		SIX	CAL30APM2	8	0.220	2046	2112	۵.	3
30AC0056	<	۵.	91001071	06/07/91		SIX	CAL30APM2	30	0.250	2237	2382	۵.	145
30AC0057	< ⋅	<b>6.</b> 1	91001096	06/12/91		XIX	CAL30APM2	2	0.255	2268	2408	۵.	140
30AC0058	< ∙	<b>a</b> , 1	91001187	07/15/91		XIX	CAL30APM2	2	0.266	2334	2443	۵,	601
30AC0059	< ⋅	a., f	91001188	07/15/91		XIX	CAL30APM2	2	0.273	2374	2477	۵.	103
30AC0060	< ⋅	، ۵	91001194	07/15/91		XIX	CAL30APM2	2	0.244	2201	2234	۵.	33
30AC0061	< ∙	<b>a.</b> 6	91001226	07/20/91		SIX	CAL30APM2	8	0.222	2059	2234	۵.	175
30AC0062	٠ ٠	<b>2</b> . 6	91001229	07/20/91		SIX	CAL30APM2	<b>8</b>	0.249	2231	2382	<b>Q.</b> 1	151
3040063	< •	<b>-</b> , s	91001307	08/20/91		XIX	CAL30APM2	<b>R</b> 1	0.206	1950	2112	<b>a.</b> 1	162
30AC0064	< •	<b>2</b> , p	91001308	08/20/91		XIX	CAL30APM2	8	0.250	2237	2403	<b>a.</b> 1	991
30 4 C0044	< <	<b>.</b> , ø	91001557	16/1/20		X IX	CALSOAPM2	3 8	0.234	2137	2330	۱ م	193
30AC0067	< <	<u>.</u> A	91001489	09/04/91		Y IS	CALSOAFM2	3 8	0.210	2046	2065	<b>.</b> , o	991
30AC0068	<	. a.	91001490	09/13/91		XIX	CAL30APM2	2	0.203	2484	25.73	. 0	<u> </u>
30AC0069	<	<b>.</b>	91001493	09/11/91		SIX	CAL30APM2	8 8	0.189	1824	1865	. A.	∓ ≎
30AC0070	<	۵.	91001495	16/60/60		XIX	CAL30APM2	8	0.260	2298	2505	۵.	207
30AC0071	< -	<b>9.</b> , (	91001496	09/10/91		SIX	CAL30APM2	2	0.256	2274	23%	۵.	122
30AC0072	< •	<b>6</b> . 1	91001533	09/13/91		XIX	CAL30APM2	<b>R</b> :	0.272	2369	2460	<u>-</u>	16
30AC00/3	< <	ı, o	91001574	09/20/91		XIX	CAL30APM2	2 2	0.26	2345	2466	<b>-</b> . (	121
30AC0075	< <	<b>.</b> , O.	91001588	09/27/91		X IX	CALSOAFMZ	3 8	0.25	0277	7630	<b>.</b> a	801 0 50
30AC0076	: <b>&lt;</b>	. <b>c.</b>	91001589	09/26/91		SIX	CAL30APM2	2	0.260	2298	2546	٠ 4	248
30AC0077	<	۵.	91001592	09/26/91		SIX	CAL30APM2	8	0.272	2369	2539	. <b>2</b> .	170
30AC0078	<	۵.	91001594	09/26/91		XIX	CAL30APM2	8	0.228	2098	2269	۵,	171
30AC0079	< ∙	Δ, (	91001750	11/04/91		XIX	CAL30APM2	30	0.203	1929	2141	<b>L</b>	212
3040000	< •	<b>2.</b> 6	91001/51	11/04/91		XIX	CAL30APM2	유 (	0.208	1964	<b>3</b> 902	<b>a.</b> (	104
3040081	٠ ،	<b>.</b> , o	91001815	16/21/11		XIX	CALSOAPM2	2 2	0.251	2243	2371	۰. ۱	128
3040083	< <	. 0	01001810	11/12/91		Y 10	CALMARMA	3 8	0.156	1811	1933	<b>.</b> .	142
30 A C 10 8 4	€ <	. Δ	01001830	10/40/11		Y 10	CALSOAFMA	2	0.253	<b>996</b> 7	7 57 6	<b>L</b> , 6	<b>\$</b> 71
30AC0085	<	۰. ۵	91001973	12/17/91		XIX	CAL MAPK?	2 2	0.234	22.01	7777	L A	507
30AC0086	: <	. 🕰	92000042	01/16/92		X 15	CALBOADMO	2 2	9000	7046	2000		911
30AC0087	: <	. م	92000044	01/16/92		XIX	CALMAPM2	2 2	0.220	2286	2414	<b>.</b> a	9C1
30AC0088	<	۵.	92000109	01/27/92		XIX	CAL30APM2	\$	0.241	2181	22.62	. A	201
30AC0089	<	<b>6</b> .	92000110	01/27/92		XIX	CAL30APM2	2	0.211	1985	2082	. 4	6
30AC0090	<	۵.	92000154	02/07/92		XIS	CAL30APM2	8	0.298	2515	25 19	. 0.,	; <del>•</del>
30AC0091	<	۵.	92000190	02/19/92		SIX	CAL30APM2	8	0.259	2292	2294	, <b>a.</b>	~ ~
30AC0092	<	۵.	92000250	02/27/92		SIX	CAL30APM2	2	0.194	1865	1966	, <b>a.</b>	101

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFURMANCE OF ARMOR PLATE MATERIAIS PROJECTILE: CAL 0.30 AP M2
DATABASE MODULE 5: CHEMICAL COMPOSITIONS

ARL/MD ID	C [WT%]	WTX]	SI [WT%]	NI [WT%]	CR [WT%]	MO [WT%]	v [WT%]	B [WT%]	CU [WT%]	P [WT%]	S [WT%]	ZR [WTS]	AL [WTS]
30AC0001	0.2900	0.8400	0.4300	0.9400	0.5000	0.5400	0.0030	0.0003	0.1200	0.0040	0.0030	0.0040	0.0370
30AC0002	0.2900	0.8400	0.4300	0.9400	0.5000	0.5400	0.0030	0.0003	0.1200	0.0030	0.0030	0.0040	0.0370
30AC0003	0.2900	0.8400	0.4300	0.9400	0.5000	0.5400	0.0030	0.0003	0.1200	0.0000	0.0030	0.0040	0.0370
30AC0004	0.2800	1.4200	0.3000			0.2700		0.0015		0.0070	0.0030		
30AC0005	0.2900	0.8600	0.4300	0.9400	0.5000	0.5600			0.0900	0.0050	0.0010	0.0040	0.0270
30AC0006	0.2800	1.4100	0.3100			0.2800		0.001		0.0080	0.0020		
30AC0007	0.2800	1.3700	0.0010			0.2700		0.0010		0.0120	0.0030		
30AC0008	0.2870	0.7480	0.3080	0.9360	0.9400	0.3150				0.0040	0.0002		
30AC0009	0.2700	0.8200	0.4700	0.9300	0.5000	0.5600	0.0040	0.0004	0.1000	0.0050	0.0030	0.0030	0.0390
30AC0010	0.2700	0.8200	0.4100	0 9300	0.5000	0.5600	0.0040		0.1000	0.0050	0.0030	0.0030	0.0390
30AC0011	0.2700	0.8200	0.4700	0.9300	0.5000	0.5600	0.0040		0.1000	0.0050	0.0030	0.0030	0.0390
30AC0012	0.2900	0.9000	0.4400	1.0000	0.5100	0.5700	0.0030		0.2400	0.0010	0.0010		0.0350
30AC0013	0.2900	0.9200	0.4400	0.9200	0.5100	0.5600	0.0030		0.2100	0.0000	0.0020		0.0310
30AC0014	0.3000	0.9000	0.4400	0.9200	0.5000	0.5600	0.0030		0.1000	0.0050	0.0016		0.0330
30AC0015	0.2900	0.9200	0.4400	0.9200	0.5100	0.5600	0.0030		0.2100	0.0000	0.0020		0.0310
30AC0016	0.2900	0.9000	0.4400	1.0000	0.5100	0.5700	0.0030		0.2400	0.0070	0.0010		0.0350
30AC0017	0.3000	0.9000	0.4400	0.9200	0.5000	0.5600	0.0030		0.1000	0.0050	0.0010		0.0330
30AC0018	0.3000	0.8600	0.4400	0.9300	0.5000	0.5400	0.0040		0.0100	0.0060	0.0020	0.0030	0.0220
30AC0019	0.3000	0.8600	0.4400	0.9300	0.5000	0.5400	0.0040		0.0700	0.0060	0.0020	0.0030	0.0280
30AC0020	0.2800	0.9100	0.4300	0.9100	0.5100	0.5400			0.1100	0.0010	0.0030	0.0030	0.0230
30AC0021	0.2800	1.3600	0.2700			0.2800		0.0014		0.0100	0.0020		
30AC0022	0.3000	0.8100	0.4500	0.9600	0.5000	0.5600	0.0040		0.1000	0.0000	0.0020	0.0030	0.0340
30AC0023	0.3000	0.9000	0.4400	0.9400	0.5000	0.5700	0.0040		0.1600	0.0010	6.0010	0.0040	0.0270
30AC0024	0.2800	1.3600	0.2800			0.2700		0.0014		0.0010	0.0020		
30AC0025	0.2900	0.8400	0.4800	0.9700	0.5100	0.5400			0.1600	0600.0	0.0020	0.0030	0.0240
30AC0026	0.2900	0.8400	0.4800	0.9700	0.5100	0.5400			0.1600	0.0000	0.0020	0.0030	0.0240
30AC0027	0.2800	1.3700	0.2600			0.2600		0.0011		0900	0.0060		
30AC0028	0.2900	1.3800	0.3000			0.2800		0.0015		0.0000	0.0020		
30AC0029	0.2700	1.3900	0.3000			0.2600		0.0017		0.0000	0.0030		
30AC0030	0.2800	1.3700	0.2600			0.2600		0.0011		0.0000	0.0030		
30AC0031	0.2800	1.3600	0.2800			0.2700		0.0011		0.0000	0.0020		
30AC0032	0.2800	1.3600	0.2/00			0.2800		0.0014		0010.0	0.0020		
30 A C0033	0.2900	1.3400	0.3000			0.2800		0.0136		0600	0.0020		
2000	9020	2006	2007.0			907.0		2100		9000	0000		
30AC0036	0.2700	0068.0	0.5000	0 9300	0 5 100	0.5500	0 0040		0 1400	0.0070	0.000	0.000	0.0270
30 A C 0037	0.2900	0.8800	0.4300	1 0 200	0.5100	0.5700	0.0030		0.2300	0.000	0.0020	0.0030	0 0 0 0 0 0 0
30AC0038	0.3000	0.8600	0.4400	0.9300	0.5000	0.5400			0.0700	09000	0.0020	0.0030	0.0280
30AC0039	0.2900	1.3900	0.3100			0.2700		0.0012		0.0070	0.0020		
30AC0040	0.2800	1.3600	0.3000			0.2700		0.0011		0.0110	0.0020		
30AC0041	0.2800	1.3600	0.3100			0.2800		0.0013		0.0120	0.0020		
30AC0042	0.2800	1.3700	0.2800			0.2800		0.0012		0.0070	0.0030		
30AC0043	0.3000	0.9000	0.4400	0.9400	0.5000	0.5700	0.0040		0.1600	0.0070	0.0010	0.0040	0.0270
30AC0044	0.2800	0.9100	0.4300	0.9200	0.5100	0.5300	0.0050		0.1100	0.0060	0.0030		0.0210
30AC0045	0.2800	0.9100	0.4300	0.9200	0.5100	0.5300	0.0050		0.1100	0900 0	0.0030		0.0210
30AC0046	0.3000	0.9000	0.4000	0.8900	0 2000	0.5500	0.0030		0060.0	0900	0.0010		0.0240

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS FROJECTILE: CAL 0.30 AP M2 DATABASE MODULE 5: CHEMICAL COMPOSITIONS

•   _			
0.0030	0.0090		0.0050
		0.0050	0.0020 0.0050
0.0030	0.0080	0.0060 0.0080	
		0.0040	
		0.0040	0.0040
		0.0040	0.0040 0.0040
			0.0030
	0.0070	0.0050 0.0070	0.0050
0.0030	0.0120	0.0060 0.0120 0.0060 0.0140	
0.0020	0.0130		0.0050
0.0020			0.0050
0.0030	0.0140	0.0050 0.0140	
0.0030			
	0.0140	0.0060 0.0140	
		0.0050	0.0050
		0.0040	0.0040

CSTA-ARI/MD JOINT EPPORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.30 AP M2 DATABASE MODULE 5: CHEMICAL COMPOSITIONS

	ပ	Z	SI	Z	S	OM	>	œ	CU	۵.	S	ZR	AI.
ARL/MD ID	[WT%]	[WT%]	[WT%]	[%T%]	[%LM]	[WT%]	[%1%]	[WT%]	[WT%]	[%1%]	[WT%]	[WT%]	[WT%]
30AC0047	0.2800	0.9100	0.4300	0.9100	0.5100	0.5400	0.0050		0.1100	0.0080	0.0030	0.0030	0.0230
30AC0048	0.2800	0.9100	0.4300	0.9100	0.5100	0.5400	0.0050		0.1100	0.0080	0.0030	0.0030	0.0230
30AC0049	0.2800	0.9100	0.4300	0.9100	0.5100	0.5400			0.1100	0.0080	0.0030	0.0030	0.0230
30AC0050	0.2900	0.8800	0.4900	0.9700	0.5000	0.5800			0.1100	0.0120	0.0030	0.0030	0.0340
30AC0051	0.2900	0.8800	0.4900	0.9700	0.5000	0.5800			0.1100	0.0120	0.0030	0.0030	0.0340
30AC0052	0.2800	1.3600	0.3100	0.0410	0.0460	0.2800	0.0030	0.0013		0.0120	0.0020	0.0020	
30AC0053	0.3000	0.8700	0.4100	0.9000	0.5000	0.5600			0.0900	0.0080	0.0020	0.0030	0.0250
30AC0054	0.2900	0.8400	0.4800	0.9700	0.5100	0.5400	0.0040		0.1600	0.0000	0.0020	0.0030	0.0240
30AC0055	0.2700	1.3900	0.3000	0.0130	0.0270	0.2600	0.0040	0.0017		0.0000	0.0030	0.0040	
30AC0056	0.3000	0.8700	0.4100	0.9000	0.5000	0.5600	0.0030	0.0003	0.0900	0.0080	0.0020	0.0030	0.0250
30AC0057	0.2900	0.8400	0.4800	0.9700	0.5100	0.5400	0.0040		0.1600	0.0000	0.0020	0.0030	0.0240
30AC0058	0.2900	1.3500	0.2900			0.2800		0.0011		0.0080	0.0020		
30AC0059	0.2800	1.3500	0.2900			0.2800		0.0012		0.0000	0.0020		
30AC0060	0.3100	0.8800	0.4300	0.8100	0.5000	0.5500	0.0040		0.1100	0.0000	0.0010		0.0360
30AC0061	0.3100	0.8800	0.4300	0.8700	0.5000	0.5500	0.0040		0.1100	0.0000	0.0010		0.0360
30AC0062	0.3100	0.8600	0.4400	0.9000	0.5000	0.5600			0.1200	0.0110	0.0020	0.0030	0.0380
30AC0063	0.3000	0.8600	0.4400	0.9300	0.5000	0.5400	0.0040	0.0002	0.0700	0900.0	0.0020	0.0030	0.0280
30AC0064	0.2900	0.8800	0.4900	0.9700	0.5000	0.5800	0.0030		0.1100	0.0120	0.0030	0.0030	0.0340
30AC0065	0.2720	0.7300	0.2910	0.9260	0.8530	0.2950				0.0039	0.000		
30AC0066	0.2900	1.3600	0.2800			0.2800		0.0013		0.0080	0.0020		
30AC0067	0.3100	0.8600	0.4400	0.9000	0.5000	0.5600	0.0040	0.0003	0.1200	0.0110	0.0020	0.0030	0.0380
30AC0068	0.2900	0.8200	0.4100	0.9400	0.5000	0.5600	0.0030		0.1400	0.0060	0.0010	0.0040	0.0360
30AC0069	0.3100	0.8600	0.4400	0.9000	0.5000	0.5600	0.0040		0.1200	0.0110	0.0020	0.0030	0.0380
30AC0070	0.2900	1.3400	0.2700	0.0070	0.0300	0.2800		0.0012		0.0080	0.0020		
30AC0071	0.2900	1.3600	0.2800	0.0000	0.0360	0.2800		0.0013		0.0080	0.0020		
30AC0072	0.3100	0.8600	0.4400	0.9000	0.5000	0.5600	0.0040		0.1200	0.0110	0.0020	0.0030	0.0380
30AC0073	0.2500	1.3400	0.3000			0.3400		0.0017		0.0070	0.0020		
30AC0074	0.2700	0.7000	0.2500	0.4200	0.5100	0.2500		0.0017		0.0070	0.0070		0.0700
30AC007S	0.2700	0.7200	0.2700	•	0.5000	0.2500		0.0016		0.0080	0.0070		0.0820
30AC0076	0.2700	0.7200	0.2500	0.4600	0.5200	0.2500		0.0017		0.0080	0.0070		0690.0
30AC0077	0.2500	1.3400	0.3000			0.3400		0.0017		0.0070	0.0020		
30AC0078	0.2900	1.3500	0.2900			0.2800		0.0011		0.0080	0.0020		
30AC0079	0.2900	1.3400	0.2700			0.2800		0.0012		08000	0.0020		
30AC0080	0.2500	1.3400	0.3000			0.3400		0.0017		0.0070	0.0020		
30AC0081	0.2900	0.8200	0.4700	0.9400	0.5000	0.5600	0.0030		0.1400	0.0060	0.0010	0.0040	0.0360
30AC0082	0.2900	0.8200	0.4100	0.9400	0.5000	0.5600	0.0030		0.1400	0900	0.0010	0.0040	0.0360
30AC0083	0.2800	0.8300	0.4500	0.9400	0.5000	0.5500	0.0070		0.1100	0.0050	0.0010	0.0030	0.0320
30AC0084	0.2800	0.8900	0.2700	0.9400	0.5300	0.3500	0.0300	0.0020		0.0060	0.0020		
30AC0085	0.2700	0.7600	0.0270	0.4800	0.5200	0.2400		9100.0	0.0010	0.0100	0.006		0.0410
30AC0086	0.3000	0.5000	0.2500	0.1200	1.0000	0.1900	0.0040		0.1100	0.0050	0.0030	0.0010	0.0080
30AC0087	0.2900	0.4700	0.2300	0.1300	0.9700	0.1800	0.0040		0.1100	0.0070	0.0010	0.0010	0 0080
30AC0088	0.3000	0.8300	0.4500	0.8900	0.4900	0.5300			0.1100	0.0120	0.0020	0.0010	0.0400
30AC0089	0.3000	0.5000	0.2400	0.2600	1.0000	0.1900	0.0040		0.2100	0.0070	0.0040	0.0010	0.0050
30AC0090	0.3000	0.8400	0.4200	0.8800	0.5000	0.5700	0.0040		0.0900	09000	0.0030	0.0020	0.0330
30AC0091	0.3000	0.5000	0.2400	0.2600	1.0000	0.1900	0.0040		0.2100	0.0070	0.0040	0.0010	0.0050
30AC0092	0.2900	0.8400	0.4300	0.9100	0.5000	0.5400	0.0030		0.0100	0.0050	0.0020	0.0020	0.0310

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.30 AP M2
DATABASE MODULE 5: CHEMICAL COMPOSITIONS

		*   *	[ <b>%</b> 1 <b>%</b> ]		[%] M	[%L%]	[*T*]	% I %	- * - *	RIA
30AC0047	0.0250	0.0030	0.0050	0.0070	; 	0.0057	0.0020	0.3000	0.0020	1
30AC0048	0.0250	0.0030	0.0050	0.0070		0.0057	0.0020	0.3000	0.0020	
30AC0049	0.0250	0.0030	0.0050	0.0070						
30AC0050	0.0270	0.0020	0.0070	0.0140	0.0030					
30AC0051	0.0270	0.0020	0.0070	0.0140	0.0030					
30AC0052										
30AC0053	0.0040	0.0020	0.0050	0.0070	0.0030					
30AC0054	0.0040	0.0020					0.0020	0.3000	0.0040	
30AC0055										
30AC0056	0.0040	0.0020	0.0050	0.0070	0.0030					
30AC0057	0.0040	0.0020	0.0050	0.0130	0.0020	0.0069			0.0040	
30AC0058										
30 A C 00 S 9										
30 4 C0060	0 0000		0 0000			0800	0.000	0.7000	0.000	0.0126
30AC0061	0.0040		0.0040							0.0120
100000		0.000	0.00.0							
30AC0062	0.0040	0.0030	0.000							
30AC0063	0.0290	0.0030	0.0040	0.0070	0.0030					
30AC0064	0.0270	0.0020	0.0070	0.0140	0.0030					
30AC0065										
30AC0066										
30 A C 0067	0 000	0.000	0.000	0.0120	0.0030					
10002405		0.000	0.000	0110.0	00000	0.006.0			0.000	
0000 Voc	0.0200	0.0020	0.0030	0.0000	0.0020	7000			0.0030	
SUACOGO	0.0040	0.0030	0.0050	0.0120	0.0030					
30AC0070	٠									
30AC0071										
30AC0072	0.0040	0.0030	0.0050	0.0120	0.0030					
30AC0073										
30AC0074	0.0340									
30 A C 0075	0 0 0 0 0									
2040076	0.0250									
SUACULA I										
30AC0078										
30AC0079										
30AC0080										
30AC0081	0.0280	0.0020	0.0050	0.0080	0.0020	0.0062	0.0020	0.1000	0.0030	
30AC00\$2	0.0280	0 0020	0.0050	0.0080	0.0020	0.0062	0.0020	0.1000	0.0030	
30 A C 0083	0.000	0,000	0.000	0 0000	0,000	0.000	0.000	0.4000	0.000	
200000		2700.0			0.000				2000	
\$6000 Vac	0000									
30VC	0.0300									
30AC0086	0.0290	0.0020	0.0050	0.0140	0.0020					
30AC0087	0.0300	0.0020	0.0060	0.0140	0.0020					
30AC0088	0.0020	0.0020	0.0050	0.0110	0.0030					
30AC0089	0.0300	0.0020	0.0070	0.0170	0.0020					
30 A C 0090	0.0270	0.0020	0.0050	0 0000	0.0030	0.0071	0.000	0 4000	0.000	
30 A C 0091	00200	0.0020	0.000	0.000	0000		2700.0			

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.50 AP M2
DATABASE MODULE 1: MTL ID & MIL SPEC ATTRIBUTES
DATABASE MODULE 2: PLATE PRODUCTION HISTORY

Color   Colo		Ę	MIL	MIL	MIL						PRODICER
MIL-A-46100 C MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D	ARL/MD ID	SPEC NO	REV	AMD	MATCL	PROD	FABR	HEAT TR	HEAT NO	LOT NO	PLATE NO
MIL - A - 6100 D  MIL - A - 61	\$0 A C 0001	MIT - A - 46100	٥	1			1	1	B7070		D7070_1FB
MIL - A - 46100 D D D D D D D D D D D D D D D D D D	100000	00104-1-71111	) (						2000		DISTO-IND
MIL - A - 46100 D  MIL - A - 461	SUACOUL	MIL-A-40100	۱ د						Bacon		82000-2017B
MIL - A - 46100 C MIL - A - 46100 D MIL - A - 46100 C MIL - A - 46	SUACUOUS	MIL-A-46100	۱ د						001914		719
MIL - A - 46100 C MIL - A - 46100 C MIL - A - 46100 D MIL - A - 46100 C MIL - A - 46	50AC0004	MIL-A-46100	۵						B8337		B8337-6AC
MII. ~~ -66100 C MII. ~~ -66100 D MII. ~~ -66100 D MII. ~~ -66100 D MII. ~~ -66100 D MII. ~~ -66100 C MII. ~~ -66100 D MII. ~~ -66100 C MII. ~~ -66100 D MII. ~~ -66100 D MII. ~~ -66100 C MII. ~~ -66100 D MII. ~~ -66100 C MII. ~~ -66100 D MII. ~	50AC0005	MIL-A-46100	ပ						B7397		B73971BC
MII. A - 46100 D  MII. A - 46100 D  MII. A - 46100 D  MII. A - 46100 C  MII. A - 46100 D  MII. A - 46100 C  MII. A - 461	50AC0006	MIL-A-46100	ပ						B8327		B8327-2MF
MII - A - 46100 D  MII - A - 46100 C  MII - A - 46100 C  MII - A - 46100 C  MII - A - 46100 D  MII - A - 46100 C  MII - A - 46100 D  MII - A - 461	S0AC0007	MIL-A-46100	۵						B9675		B9675-4EE
MII - A - 46100 D	50AC0008	MIL-A-46100	Q						663455		307
MII - A - 46100 C 2  MII - A - 46100 C C  MII - A - 46100 C C  MII - A - 46100 D D  MII - A - 46100 C C 1  MII - A - 46100 C C 1  MII - A - 46100 D D  MII - A - 46100 D D  MII - A - 46100 C C 2  MII - A - 46100 C C 2  MII - A - 46100 D D  MII - A - 46100 C C 2  MII - A - 46100 C C C 2  MII - A - 46100 C C C 2  MII - A - 46100 C C C 2  MII - A - 46100 C C C 2  MII - A - 46100 C C C 2  MII - A - 46100 C C C C 2  MII - A - 46100 C C C C C C C C C C C C C C C C C C	50AC0009	MIL-A-46100	Q						663454		89
MII. A - 46100 C MII. A - 46100 C MII. A - 46100 D MII. A - 46100 C MII. A - 46100 C MII. A - 46100 D MII. A - 46100 C MII. A - 46100 D MII. A - 46100 C MII. A - 46100 D MII. A	S0AC0010	MIL-A-46100	ပ	7					R0326		R0326-3AG
MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 C MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MI	50AC0011	MIL-A-46100	ပ						B9641		B9641-6BD
MIL - A - 46100 D MIL - A - 46100 C MIL - A - 46100 D MIL - A - 46	50AC0012	MIL-A-46100	ပ						B9195		B9195-39EB
MIL - A - 46100 D MIL - A - 46100 C MIL - A - 46100 C MIL - A - 46100 D MIL - A - 46100 C MIL - A - 46100 D MIL - A - 46	50AC0013	MIL-A-46100	Q						B3645		B3645-1PE
MIL - A - 46100 D MIL - A - 46100 C MIL - A - 46100 D	50AC0014	MIL-A-46100	Q						R0279		R0279-1DC
MIL - A - 46100 D  MIL - A - 46100 D  MIL - A - 46100 D  MIL - A - 46100 C  MIL - A - 46100 C  MIL - A - 46100 D  MIL - A - 46100 C  MIL - A - 461	50AC0015	MIL-A-46100	Ω						664155		618
MIL - A - 46100 D  MIL - A - 46100 D  MIL - A - 46100 C  MIL - A - 46100 C  MIL - A - 46100 D  MIL - A - 46100 C  MIL - A - 461	50AC0016	MIL-A-46100	۵						664154		603
MIL - A - 46100 D  MIL - A - 46100 D  MIL - A - 46100 C  MIL - A - 46100 C  MIL - A - 46100 D  MIL - A - 46100 C  MIL - A - 46100 D  MIL - A - 46100 C  MIL - A - 46100 C  MIL - A - 46100 D  MIL - A - 46100 C  MIL - A - 46100 D  MIL - A - 461	S0AC0017	MIL-A-46100	۵						664155		594
MIL-A-46100 D MIL-A-46100 C MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MI	50AC0018	MIL-A-46100	Ω						664154		735A
MIL-A-46100 C 1 MIL-A-46100 C 1 MIL-A-46100 D 1 MIL-A-46100 D D 1 MIL-A-46100 D D 2 MIL-A-46100 D D 2 MIL-A-46100 D 2 MIL-A-46100 C 2 MIL-A-46100 D 3 MIL-A-46100 D 4 MIL-A-46100 D 5 MIL-A-46100 D 5 MIL-A-46100 D 5 MIL-A-46100 D 6 MIL-A-46100 D 7 MIL-A-46	50AC0019	MIL-A-46100	۵						664154		743
MIL-A-46100 C 1  MIL-A-46100 D 1  MIL-A-46100 D D 2  MIL-A-46100 D D 2  MIL-A-46100 D D 2  MIL-A-46100 C 2  MIL-A-46100 D 2  MIL-A-46100 D 0	50AC0020	MIL-A-46100	ပ	~					3252K		18325
MIL-A-46100 C I MIL-A-46100 D D MIL-A-46100 D D MIL-A-46100 D D MIL-A-46100 D D MIL-A-46100 C 2 MIL-A-46100 D D MIL-A-46100 D	50AC0021	MIL-A-46100	ပ	-					3252K		17427A
MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MI	S0AC0022	MIL - A - 46100	ပ	_					3252K		17444B
MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D	50AC0023	MIL-A-46100	Ω,						435564		<b>*</b>
MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 C MIL-A-46100 C MIL-A-46100 C MIL-A-46100 C MIL-A-46100 C MIL-A-46100 D	50AC0024	MIL - A - 46100	Ω (						435765		475
MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D	50AC0025	MIL - A - 46100	Ω :						663810		694
MIL-A-46100 D MIL-A-46100 C 2 MIL-A-46100 D 2 MIL-A-46100 C 3 MIL-A-46100 D 2 MIL-A-46100 D 3	50AC0026	MIL-A-46100	۵						B9838		B9838-2AE
MIL-A-46100 C 2 MIL-A-46100 C 2 MIL-A-46100 D 2 MIL-A-46100 C 2 MIL-A-46100 C 2 MIL-A-46100 C 2 MIL-A-46100 D 2 MIL-A-46100 D 0	50AC0027	MIL-A-46100	۵						R0549		R0549-1GB
MIL-A-46100 C 2  MIL-A-46100 D 2  MIL-A-46100 C 2  MIL-A-46100 C 2  MIL-A-46100 D 2  MIL-A-46100 D 3	50AC0028	MIL-A-46100	ပ	7					R0755		R0755-1GG
MIL-A-46100 D MIL-A-46100 C 2 MIL-A-46100 C 2 MIL-A-46100 C 2 MIL-A-46100 D	50AC0029	MIL-A-46100	ပ	7					R0755		R0755-2AF
MIL-A-46100 C 2 MIL-A-46100 C 2 MIL-A-46100 C 2 MIL-A-46100 D 2 MIL-A-46100 D 3 MIL-A-46100 D 3 MIL-A-46100 D 3 MIL-A-46100 D 4 MIL-A-46100 D 5 MIL-A-46100 D 5 MIL-A-46100 D 5 MIL-A-46100 D 6 MIL-A-46100 D 7	50AC0030	MIL-A-46100	۵						B9838		B9838-4BE
MIL-A-46100 C 2  MIL-A-46100 C 2  MIL-A-46100 D 2  MIL-A-46100 D 3  MIL-A-46100 C 1  MIL-A-46100 C 1  MIL-A-46100 D 2  MIL-A-46100 C 2  MIL-A-46100 C 2  MIL-A-46100 C 2	50AC0031	MIL-A-46100	ပ	2					R0755		R0755-39NC
MIL-A-46100 C MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 D	50AC0032	MIL-A-46100	ပ	7					R1042		R1042-3HG
MIL-A-46100 C 2  MIL-A-46100 D 2  MIL-A-46100 D 1  MIL-A-46100 C 1  MIL-A-46100 D D  MIL-A-46100 D D  MIL-A-46100 D D  MIL-A-46100 D D  MIL-A-46100 C 2  MIL-A-46100 C 2  MIL-A-46100 D D  MIL-A-46100 D D	50AC0033	MIL-A-46100	ပ						7493J		27878
MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D	50AC0034	MIL-A-46100	ပ	7					R2241		R2241-1KG
MIL-A-46100 D MIL-A-46100 C 1 MIL-A-46100 C 1 MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C 2 MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D	S0AC0035	MIL-A-46100	Ω						400296		173
MIL-A-46100 C 1 MIL-A-46100 C 1 MIL-A-46100 D	50AC0036	MIL-A-46100	Ω						R2241		R2241-3AE
MIL-A-46100 C MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 C MIL-A-46100 C MIL-A-46100 C MIL-A-46100 C MIL-A-46100 D	50AC0037	MIL-A-46100	ပ	_					3866K		25836
MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C MIL-A-46100 C MIL-A-46100 C MIL-A-46100 D	50AC0038	MIL-A-46100	ပ						7492J		27855
MIL-A-46100 D MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C 2 MIL-A-46100 C 2 MIL-A-46100 C 2 MIL-A-46100 D 2	50AC0039	MIL-A-46100	Ω						R2324		R2324-4EC
MIL-A-46100 D MIL-A-46100 D MIL-A-46100 C 2 MIL-A-46100 D MIL-A-46100 C 2 MIL-A-46100 C 2	S0AC0040	MIL-A-46100	Ω						R3228		R3228-1EE
MIL-A-46100 D MIL-A-46100 C 2 MIL-A-46100 D 2 MIL-A-46100 C 2 MIL-A-46100 C 2	50AC0041	MIL-A-46100	Ω						R3228		R3228 - 1CC
MIL-A-46100 C 2 MIL-A-46100 D 2 MIL-A-46100 C 2 MIL-A-46100 D 2	50AC0042	MIL-A-46100	Ω						R1450		R1450-7CC
MIL-A-46100 D 2 MIL-A-46100 C 2 MIL-A-46100 D 2	50AC0043	MIL-A-46100	ပ	7					R3662		R3662-2AF
MIL-A-46100 C 2 MIL-A-46100 D 2	50AC0044	MIL-A-46100	۵						829564		4108
MIL-A-46100 D	50AC0045	MIL-A-46100	ပ	7					R2324		R2324-39AC
	<b>50AC0046</b>	MIL-A-46100	Ω						401085		125A

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.50 AP M2
DATABASE MODULE 1: MTL ID & MIL SPEC ATTRIBUTES
DATABASE MODULE 2: PLATE PRODUCTION HISTORY

ARL/MD ID	MIL SPEC NO	MIL SPEC REV	SPEC AMD	MAT CL	PROD	PABR	HEAT TR	HEAT NO	LOT NO	PRODUCER PLATE NO
50AC0047	MIL - A - 46100	Q	 	, , , , , , ,	 	{   	 	400296	! !	136D
50AC0048	MIL-A-46100	۵						R3935		R3935-4ED
	MIL-A-46100	Q						401085		836
	MIL-A-46100	۵						R3711		R3711-2EI
50AC0051	MIL - A - 46100	Q						580031		3744693
S0AC0052	MIL-A-46100	Ω						580031		3744648
	MIL-A-46100	Q						R3935		R3935-4ED1
	MIL-A-46100	۵						R3935		R3935-4ED2
	MIL-A-46100	Ω						R3935		R3935-39AD
	MIL-A-46100	۵						R3711		R3711-2BG1
	MIL-A-46100	Q						R3711		R3711-2BG2
	MIL-A-46100	Ω						580031		9579329
	MIL-A-46100	۵						580031		9579336
	MIL-A-46100	Ω						R4421		R4421-39CE
50AC0061	MIL-A-46100	۵						92663		55072A
S0AC0062	MIL-A-46100	ပ						R4845		R4845-3EH
50AC0063	MIL-A-46100	ပ						4859K		40511
50AC0064	MIL-A-46100	Ω						R3935		R3935 - 3CI

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CSTA-ARL/MD JOINT EPPORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.50 AP M2 DATABASE MODULE 3: MATERIALS PROPERTIES

SOACOOLS         C.34         SIL         INDMIN           SOACOOLS         0.34         512         6.64           SOACOOLS         0.34         512         6.64           SOACOOLS         0.34         512         6.65           SOACOOLS         0.34         512         6.65           SOACOOLS         0.324         577         6.69           SOACOOLS         0.324         477         6.69           SOACOOLS         0.324         477         6.04           SOACOOLS         0.312         4.08         4.08           SOACOOLS         0.314         495         4.08           SOACOOLS         0.314         495         4.08           SOACOOLS         0.314         405         4.08           SOACOOLS         0.314         4.08         4.08           SOACOOLS         0.346         5.14         4.08           SOACOOLS <td< th=""><th>[FT-LB] 23.0 23.3</th><th></th><th></th><th></th></td<>	[FT-LB] 23.0 23.3			
0.402 0.384 0.383 0.320 0.383 0.391 0.391 0.391 0.391 0.392 0.332 0.384 0.384 0.384 0.384 0.385 0.385 0.385 0.385 0.385 0.386 0.318 0.314 0.318 0.314 0.318 0.314 0.318 0.314 0.318 0.314 0.318 0.314 0.316 0.318 0.314 0.316 0.318 0.314 0.316 0.318 0.314 0.318 0.314 0.316 0.318 0.314 0.316 0.318 0.316 0.318 0.316 0.318 0.317 0.318 0.328 0.338 0.338 0.338 0.338 0.338 0.338 0.338 0.338 0.338 0.338 0.338 0.338 0.338	23.0	FI - LB	BRN	DEG FI
0.384 512 0.320 512 0.320 512 0.324 477 0.324 477 0.327 477 0.327 477 0.328 521 0.328 521 0.328 521 0.338 647 0.318 514 0.318 518 0.318 518 0.318 518 0.318 518 0.318 518 0.318 518 0.318 518 0.318 518 0.318 518 0.318 518 0.318 518 0.318 518 0.318 518 0.318 518 0.318 518 0.318 518	23.3	24.3		1660
0.383 0.383 0.320 0.320 0.320 0.321 0.321 0.322 0.323 0.324 0.327 0.324 0.325 0.325 0.325 0.325 0.325 0.325 0.326 0.318 0.314 0.326 0.318 0.314 0.326 0.318 0.314 0.326 0.327 0.328 0.328 0.328 0.328 0.328 0.332 0.328 0.332 0.332 0.332 0.332 0.332 0.332 0.332 0.332 0.332 0.332 0.332 0.332 0.332 0.332		23.3		1660
0.320 0.320 0.340 0.351 0.341 0.354 0.357 0.357 0.357 0.384 0.384 0.384 0.384 0.384 0.384 0.385 0.385 0.385 0.385 0.386 0.318 0.318 0.314 0.318 0.318 0.314 0.318 0.314 0.318 0.314 0.318 0.314 0.316 0.318 0.314 0.316 0.318 0.314 0.316 0.318 0.314 0.316 0.318 0.314 0.316 0.318 0.316 0.318 0.316 0.318 0.317 0.314 0.318 0.318 0.316 0.318 0.328 0.338 0.338 0.338 0.338 0.338 0.338 0.338 0.338 0.338 0.338 0.338 0.338 0.338	20.0	15.0	495	1650
0.388 512 0.405 477 0.324 477 0.324 477 0.325 477 0.326 494 0.312 695 0.312 695 0.313 695 0.314 695 0.318 696 0.317 697 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696 0.318 696	16.3	18.7	512	1660
0.405 0.391 0.391 0.392 0.392 0.357 0.367 0.385 0.385 0.312 0.318	20.3	21.0		1660
0.391 512 0.324 477 0.367 477 0.367 477 0.385 621 0.385 512 0.312 495 0.312 495 0.313 495 0.314 495 0.314 495 0.314 495 0.314 495 0.315 514 0.316 514 0.316 514 0.317 477 0.391 504 0.318 504 0.317 477 0.391 504 0.318 504 0.317 477 0.391 504 0.392 500 0.318 504 0.317 647 0.318 504 0.319 504 0.319 504 0.310 504 0.324 512 0.339 692 0.339 692 0.339 692 0.339 692 0.339 692 0.339 692	20.7	23.3		1660
0.324 477 0.357 477 0.356 477 0.358 677 0.358 677 0.358 521 0.358 521 0.358 594 0.318 594 0.318 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.347 6138 504 0.318 504 0.318 504 0.318 504 0.318 504 0.318 504 0.318 504 0.318 504 0.328 520 0.328 520 0.328 520 0.328 520 0.339 640 0.332 630	23.3	22.3		1660
0.357 477 0.267 477 0.320 6.320 0.328 521 0.328 521 0.328 521 0.318 514 0.318 514 0.318 514 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318 0.318 6.318	12.0	10.0	477	1650
0.267 477 0.320 6.324 6.321 0.384 5.21 0.385 5.12 0.318 5.12 0.318 5.14 0.318 5.14 0.318 5.14 0.318 5.14 0.318 5.14 0.318 5.14 0.318 5.14 0.318 5.14 0.318 5.14 0.318 5.14 0.318 5.14 0.318 5.14 0.318 5.14 0.318 5.14 0.319 5.14 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.328 5.20 0.339 6.330 6.330	9.0	8.3	477	1650
0.320 0.384 0.385 0.312 0.312 0.313 0.313 0.314 0.318 0.314 0.491 0.346 0.318 0.346 0.318 0.346 0.318 0.346 0.318 0.346 0.318 0.314 0.318 0.314 0.318 0.314 0.318 0.314 0.318 0.314 0.317 0.318 0.314 0.317 0.318 0.314 0.317 0.318 0.314 0.317 0.318 0.314 0.317 0.318 0.314 0.317 0.318 0.314 0.317 0.318	25.7	25.3		1660
0.384 521 0.385 512 0.312 495 0.312 495 0.313 495 0.314 495 0.318 514 0.491 495 0.314 495 0.314 495 0.314 495 0.314 495 0.314 495 0.314 495 0.315 497 0.318 504 0.317 477 0.591 504 0.318 504 0.317 504 0.318 506 0.317 647 0.318 506 0.318 506 0.318 506 0.318 506 0.318 506 0.318 506 0.318 506 0.318 506 0.319 504 0.319 504 0.319 504 0.319 504 0.319 504	9.0	8.3		1660
0.385 512 0.502 504 0.312 495 0.332 495 0.314 495 0.314 495 0.314 495 0.316 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.347 504 0.317 477 0.591 504 0.318 506 0.317 477 0.591 504 0.318 506 0.317 477 0.407 6139 0.339 506 0.339 506 0.339 612 0.339 612 0.339 612 0.339 612 0.339 612	15.3	19.3		1660
0.502 504 0.312 495 0.312 495 0.314 495 0.318 514 0.491 6346 514 0.346 514 0.346 677 0.391 504 0.392 500 0.392 500 0.392 500 0.393 500 0.324 514 0.328 500 0.324 687 0.332 510 0.332 6320 0.332 6320 0.332 6320 0.332 6320 0.332 6320 0.332 6320 0.332 6320 0.332 6320 0.332 6320 0.332 6320 0.332 6320 0.332 6320	8.0	9.0		1660
0.312 495 0.355 514 0.318 614 0.318 514 0.491 495 0.318 514 0.346 514 0.346 514 0.346 6136 614 0.318 695 0.318 695 0.318 696 0.319 504 0.317 477 0.591 504 0.312 506 0.324 514 0.467 639 0.324 512 0.339 692 0.339 692 0.339 692 0.339 692 0.339 692 0.339 692 0.339 692	15.7	16.3		1660
0.355 514 0.316 495 0.318 514 0.491 495 0.364 514 0.366 477 0.318 695 0.318 695 0.318 695 0.318 695 0.319 504 0.310 504 0.312 506 0.324 514 0.467 687 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.339 692 0.339 692 0.339 692	22.0	18.0	495	1650
0.332 495 0.318 514 0.491 695 0.318 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.346 514 0.348 514 0.398 514 0.398 514 0.398 514 0.398 520 0.398 514 0.398 520 0.398 514 0.398 520 0.398 520 0.398 520 0.398 698 0.398 698 0.398 698 0.398 698 0.399 698	15.0	19.0	514	1650
0.314 495 0.318 514 0.491 495 0.346 514 0.346 477 0.318 495 0.318 495 0.318 495 0.318 495 0.318 694 0.317 477 0.591 504 0.392 506 0.392 500 0.392 500 0.312 504 0.312 504 0.312 504 0.312 504 0.312 504 0.312 504 0.312 504 0.312 504 0.312 504 0.312 504 0.312 504 0.312 504	12.0	10.0	495	1650
0.318 514 0.491 495 0.364 514 0.346 514 0.346 477 0.318 495 0.318 495 0.304 514 0.317 477 0.591 504 0.398 514 0.398 520 0.398 520 0.398 520 0.398 520 0.398 520 0.398 520 0.398 520 0.398 520 0.398 520 0.398 520 0.399 692 0.399 692 0.399 692 0.399 692	11.6	12.0	495	1650
0.491 495 0.364 514 0.346 514 0.346 6147 0.318 495 0.304 514 0.319 504 0.317 477 0.591 504 0.395 520 0.395 520 0.395 520 0.395 520 0.395 520 0.395 520 0.395 520 0.395 520 0.397 534 0.370 504 0.370 504 0.370 504 0.370 639	10.0	9.0	514	1650
0.364 514 0.346 477 0.368 477 0.318 495 0.304 514 0.304 514 0.317 477 0.591 504 0.317 477 0.591 504 0.392 520 0.395 520 0.395 520 0.395 520 0.395 520 0.395 520 0.395 520 0.395 520 0.397 520 0.398 692 0.399 692 0.399 692 0.399 692 0.399 692	27.3	18.7	495	1562
0.346 514 0.368 477 0.318 495 0.318 495 0.319 514 0.317 477 0.591 504 0.398 514 0.398 520 0.398 520 0.382 500 0.383 500 0.384 514 0.467 487 0.370 504 0.328 520 0.390 492 0.390 0.402 0.402 512	15.7	14.0	514	1560
0.368 477 0.318 495 0.314 695 0.320 594 0.398 514 0.398 514 0.398 520 0.395 520 0.383 500 0.312 534 0.467 487 0.370 504 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.339 692 0.339 692 0.339 692	16.0	11.7	514	1562
0.318 495 0.304 514 0.380 504 0.317 477 0.398 504 0.398 514 0.398 520 0.312 520 0.312 536 0.312 506 0.312 506 0.324 512 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520 0.328 520	10.0	17.0	477	1650
0.304 514 0.380 504 0.317 477 0.591 504 0.398 514 0.398 514 0.398 514 0.312 500 0.312 506 0.312 506 0.324 512 0.328 520 0.328 520 0.328 520 0.332 640 0.332 640 0.332 640	9.0	10.0	495	1650
0.380 504 0.317 477 0.318 504 0.398 514 0.504 502 0.395 520 0.312 520 0.312 534 0.324 514 0.328 520 0.328 520 0.390 492 0.392 692 0.392 692	9.0	7.5	514	1650
0.317 477 0.591 504 0.598 514 0.504 502 0.395 520 0.342 500 0.312 504 0.324 514 0.328 520 0.390 492 0.392 692 0.392 692 0.392 512 0.392 692	14.0	15.0		1660
0.591 504 0.398 514 0.395 520 0.382 520 0.312 534 0.312 534 0.324 514 0.467 487 0.370 504 0.370 504 0.370 6320 0.390 492 0.392 692 0.392 512	14.3	24.3		1660
0.398 514 0.504 502 0.395 520 0.382 520 0.312 534 0.324 514 0.467 487 0.370 504 0.328 520 0.390 492 0.393 490 0.402 512	19.0	19.3		1660
0.504 502 0.395 520 0.382 520 0.312 534 0.312 534 0.324 514 0.370 504 0.328 520 0.390 492 0.393 490 0.402 512	11.7	12.7		1660
0.395 520 0.382 500 0.312 534 0.383 506 0.324 514 0.467 487 0.370 504 0.328 520 0.324 512 0.390 492 0.393 492 0.402 512	12.3	17.3		1660
0.382 500 0.312 534 0.383 506 0.324 514 0.467 487 0.370 504 0.328 520 0.324 512 0.390 492 0.392 692 0.392 692	19.3	18.7		1660
0.312 534 0.383 506 0.324 514 0.467 487 0.370 504 0.328 520 0.324 512 0.390 492 0.393 490 0.332 510	14.7	17.3		1660
0.383 506 0.324 514 0.467 487 0.370 504 0.328 520 0.324 512 0.390 492 0.393 490 0.402 512	24.0	11.3		1562
0.324 514 0.467 487 0.370 504 0.328 520 0.324 512 0.390 492 0.332 510 0.402 512	14.7	16.3		1660
0.467 487 0.370 504 0.328 520 0.324 512 0.390 492 0.332 510	13.0	15.0	514	1650
0.370 504 0.328 520 0.324 512 0.390 492 0.393 490 0.402 510	15.3	18.3		1660
0.328 520 0.324 512 0.390 492 0.393 490 0.332 510 1	22.0	13.7		1562
0.324 512 0.390 492 0.393 490 0.332 510 1 0.402 512	22.3	11.0		1562
0.390 492 0.393 490 0.332 510 1 0.402 512	10.7	15.0		1660
0.393 490 0.332 510 1 0.402 512	23.0	29.3		1660
0.332 510 1 0.402 512	20.0	24.3		1660
0.402 512	16.7	22.0		1660
	14.0	14.0		1660
0.319	12.0	10.0	417	1650
50AC004S 0.356 520 6.51	10.7	12.7		1660

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.50 AP M2 DATABASE MODULE 3: MATERIALS PROPERTIES

	ACT PLATE TH	PLATE HARD	ī	CHARPY LT	CHARPY TL	CHARPY	AUS
ARL/MD ID	(NI)		(NOM)	[FT-LB]	(FT-LB)	(BRN)	(DEG F)
50AC0047	0.379	477	4.14	16.0	15.0	477	1650
50AC0048	0.313	417	5.60	25.0	27.3		1660
50AC0049	0.322	477	4.16	15.0	14.0	477	1650
50AC0050	0.394	497	6.21	25.7	30.3		1660
50AC0051	0.379	504	7.69	\$ 3 E	20.0		1688
50AC0052	0.416	<b>1</b>	7.69	32.6	30.0		1688
50AC0053	0.311	477	5.60	25.0	27.3		1660
50AC0054	0.312	477	9.60	25.0	27.3		1660
50AC0055	0.511	512	9.60	28.7	28.3		1660
50AC0056	0.386	507	6.21	25.7	30.3		1660
50AC0057	0.388	507	6.21	25.7	30.3		1660
50AC0058	0.367	167	7.69	18.0	20.0		1688
\$0AC0059	0.482	513	7.69	43.0	40.0		1688
50AC0060	0.500	512	5.52	25.3	25.3		1660
50AC0061	0.303	200	5.29	28.7	18.7		1573
50AC0062	0.324	177	2.97	8.7	11.0		1660
50AC0063	0.492	667	4.67	28.0	18.3		1565
50AC0064	0.381	477	9.60	18.7	22.7		1660

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.50 AP M2 DATABASE MODULE 4: BALLISTIC PERFORMANCE

P = PASSP = FAIL

A = ACCEPTANCE D = DEVELOPMENT FA = FIRST ARTICLE P = PRIMARY R = RETEST

	<b>3</b>				:				,		1		
ARL/MD ID	TEST PURPOSE [A/D/FA]	SAMPLE PRIM/RET [P/R]	PIRING RECORD	PIRING DATE	FAIL FIRING RECORD	TEST [NUM]	PROJECTILE	OBL (DEG)	ACT PLATE TH [IN]	req vel [ft/sec]	ACT VEL [FT/SEC]	PASS PAIL [P/F]	VEL DIPP (PTSEC)
\$0.4C0001	•	<u> </u>	90001613	10/24/90	 	XIS	CALSOAPM2	9	0.402	2157	2185	4	28
50AC0002	<	, <u>a</u> ,	90001617	10/30/90		SIX	CALS0APM2	8	0.384	2101	2199	. ه	86
50AC0003	<	۵,	90001644	11/02/90		XIX	CALS0APM2	30	0.383	2098	2172	<u>م</u>	7.4
50AC0004	<	Δ,	90001693	11/26/90		XIX	CALS0APM2	30	0.320	1890	1964	۵.	7.
S0AC000S	<	۵,	90001829	01/08/91		XIX	CAL50APM2	30	0.388	2114	2233	۵.	611
50AC0006	<	۵.	90001830	12/11/90		XIX	CALS0APM2	30	0.405	2166	2342	۵.	176
S0AC0007	<	۵.	91000033	01/12/91		SIX	CALS0APM2	8	0.391	2123	2234	۰.	111
50AC0008	<	۵.	91000036	01/12/91		SIX	CALS0APM2	30	0.324	1904	1955	۵.	51
S0AC0009	<	۵.	91000082	01/23/91		SIX	CALS0APM2	30	0.357	2015	2151	۵.	136
50AC0010	<	۰.	91000183	02/06/91		SIX	CALS0APM2	8	0.267	1398	1734	٠.	336
S0AC0011	<	۵,	91000187	02/06/91		SIX	CALS0APM2	8	0.320	1890	2108	۵.	218
50AC0012	< ⋅	<b>a.</b> 1	91000405	02/26/91		XIS	CALSOAPM2	2 3	0.384	2101	2195	<b>a.</b> 1	<b>7</b>
50AC0013	< ⋅	<b>2.</b> (	91000407	02/26/91		XIX	CALSUAPM2	3 3	0.385	2104	6677	<b>.</b> (	161
50AC0014	∢ •	24 F	91000408	02/26/91		XIX	CALSOAPMZ	3 6	0.502	2440	6667	<b>.</b> .	6:
SOACOOLS	< •	<b>.</b> , 6	91000430	16/97/70		Y IS	CALSOAFM2	3 8	0.512	7091	1981	<b>.</b> 6	41.
50AC0016	< -	<b>.</b> .	91000448	03/07/91		X IX	CALSUAFMZ	2 5	0.355	2007	2173	<b>1</b> , 6	9 :
20VC001	< •	<b>L</b> , 6	91000449	16/10/50		Y X	CALSOAFM2	9 6	0.552	7661	\$607	<b>L</b> , 6	701
50 COOTS	٠ ٠	<b>L</b> , (	20000016	16/61/00		¥16	CALSUALM2	7 8	0.314	6091	9061	<b>.</b> .	
50AC0019	۷٠	<b>24</b> f	91000606	03/19/91		XIX	CALSOAPMZ	2 2	0.318	1883	0261	<b>.</b> , c	16
50AC0020	< ∙	D., (	91000694	04/17/91		XIX	CALSOAPMZ	3	0.491	2416	2541	۱ ۵۰	523
50AC0021	< ⋅	a. 1	91000695	04/17/91		XIX	CALSOAPMZ	9 9	0.364	2038	2180	ا 14	142
50AC0022	< ⋅	D., 1	91000696	04/17/91		XIX	CALSOAPM2	2 2	0.346	1978	2138	۰,	091
50AC0023	< ⋅	<b>3</b> . <i>(</i>	91000703	04/24/91		XIX	CALSUAPMZ	3 3	0.368	1602	1612	<b>L</b> , (	3 5
50 4 C0024	< •	<b>.</b> , o	91000104	04/23/91		X 2	CALSUAFMZ	3 8	0.518	1665	2661	<b>L</b> , 6	<u> </u>
30 A C 00 2 K	< <		9100073	16/67/50		<b>41</b> 5	CALSOAPUS	2 5	280	20800	1007		7 7
50AC0027	< ∢	<b>4</b>	91000739	06/11/91		XIS	CALSOAPM2	2 2	0.317	1880	1988	- 2	101
50AC0028	: <	. a	91000743	05/02/91		XIX	CALSOAPM2	8	0.591	2678	2984	. a	30%
50AC0029	<b>* *</b>	<b>.</b>	91000883	06/07/91		XIX	CALSOAPM2	2	0.398	2145	2388	<u>م</u>	243
50AC0030	<	۵,	91000888	05/27/91		SIX	CALSOAPM2	30	0.504	2451	2488	۵,	37
S0AC0031	<	۵.	91001066	06/07/91		SIX	CAL50APM2	3	0.395	2136	2220	۵,	<b>3</b>
50AC0032	<	۵.	91001129	06/15/91		SIX	CALS0APM2	8	0.382	2095	2185	۵.	8
50AC0033	<	۵.	91001150	06/20/91		SIX	CALS0APM2	30	0.312	1862	1988	۵.	126
50AC0034	<	<u>a</u>	91001184	07/08/91		SIX	CALS0APM2	30	0.383	2098	2131	۵.	33
50AC0035	< -	۰.	91001186	06/28/91		XIX	CALSOAPM2	2	0.324	1904	2141	۰.	237
50AC0036	< ∙	۱ ۵	91001231	07/18/91		XIX	CALS0APM2	30	0.467	2349	2416	۵, ۱	67
SOACIOS/	<	<b>2.</b> 1	91001259	0//18/91		XIX	CALSUAPMZ	3	0.370	702	73	<b>2.</b> 1	103
50AC0038	<	۵.	91001289	07/24/91		SIX	CALS0APM2	90	0.328	1918	2025	<b>a</b>	101
50AC0039	<	۵,	91001381	08/27/91		SIX	CAI.50APM2	8	0.324	1904	1961	۵.	63
50AC0040	<	۵.	91001431	08/28/91		XIX	CALS0APM2	8	0.390	2120	2318	۵.	861
S0AC0041	<	۵.	91001433	10/31/91		XIX	CALS0APM2	30	0.393	2130	2163	۵.	33
50AC0042	<	۵.,	91001472	16/60/60		XIX	CALS0APM2	30	0.332	1932	1956	<u>~</u>	<b>54</b>
50AC0043	<	۵.	91001539	09/19/91		XIX	CALS0APM2	8	0.402	2157	2279	۵.	122
50AC0044	<	۵.	91001595	09/30/91		XIX	CALS0APM2	8	0.319	1887	2015	۵,	128
50AC0045	<	۵.,	91001616	09/30/91		SIX	CALS0APM2	2	0.356	2011	2087	۰.	3,6
S0AC0046	<	۵.	91001620	10/01/91		XIX	CALS0APM2	8	0.314	1869	1765	Z.	- 104

FA   FIRST ARTICLE   FA   FIRST ARTICLE   F   FALL		CSTA-ARL. BALLISTIC	/MD JOINT E	CSTA – ARL/MD JOINT BPPORT POR THE IMPROV BALLISTIC PERFORMANCE OF ARMOR PLATE M.	THE IMPROVOR PLATE M	/EMENT OF THE ATERIALS	тив		A = ACC D = DEV	A = ACCEPTANCE D = DEVELOPMENT	ا يو			
TEST         SAMPLE         FAIL         FAIL         TEST         ACT         PASS           PURPOSE         PRIM/RET         FIRING         FIRING         FIRING         TEST         OBL         PLATE TH         REQ VEL         ACT VEL         FAIL           A         P         91001626         10/01/91         SIX         CAL50APM2         30         0.379         2046         2190         P           A         P         91001752         11/04/91         SIX         CAL50APM2         30         0.379         2046         2190         P           A         P         91001752         11/04/91         SIX         CAL50APM2         30         0.379         2046         2190         P           A         P         91001747         11/04/91         SIX         CAL50APM2         30         0.379         2046         1845         P           A         P         91001841         11/15/91         91001747         SIX         CAL50APM2         30         0.319         1845         P           A         R         91001862         11/15/91         91001747         SIX         CAL50APM2         30         0.319         2120         1845		PROJECTIL Database	E: CAL 0.50 MODULE 4:	AP M2 BALLISTIC I	PERFORMAN	CE			FA = FIR P = PRIN R = RET	RST ARTICL MARY EST	m]	<u>a.</u> t.	= PASS = FAIL	
A         P         91001626         10/01/91         SIX         CAL50APM2         30         0.319         2046           A         P         91001747         11/04/91         SIX         CAL50APM2         30         0.319         2046           A         P         91001747         11/04/91         SIX         CAL50APM2         30         0.319         2133           A         P         91001840         11/15/91         SIX         CAL50APM2         30         0.313         1866           A         P         91001841         11/07/91         SIX         CAL50APM2         30         0.312         1897           A         P         91001841         11/07/91         SIX         CAL50APM2         30         0.313         1859           A         R         91001862         11/15/91         91001747         SIX         CAL50APM2         30         0.311         1859           A         R         91001924         12/06/91         91001747         SIX         CAL50APM2         30         0.311         470           A         R         91001934         12/12/91         91001747         SIX         CAL50APM2         30         0.346	<u> </u>	TEST PURPOSE [A/D/PA]	SAMPLE PRIM/RET [P/R]	FIRING	FIRING DATE	FAIL FIRING RECORD	TEST	PROJECTILE		ACT PLATE TH [IN]	REQ VEL [PT/SEC]	ACT VEL [FTSEC]	PASS FAIL [P/F]	VEL DIPP [PT/SEC]
A         P         91001747         11/04/91         SIX         CALSOAPM2         30         0.313         1866           A         P         91001752         11/04/91         SIX         CALSOAPM2         30         0.322         1897           A         P         91001817         11/15/91         SIX         CALSOAPM2         30         0.334         2133           A         P         91001841         11/07/91         SIX         CALSOAPM2         30         0.314         2086           A         P         91001841         11/07/91         SIX         CALSOAPM2         30         0.311         1859           A         R         91001862         11/15/91         91001747         SIX         CALSOAPM2         30         0.311         1852           A         R         91001924         12/06/91         91001747         SIX         CALSOAPM2         30         0.311         1862           A         R         91001942         12/16/91         91001817         SIX         CALSOAPM2         30         0.384         2101           A         R         91001942         12/12/91         91001817         SIX         CALSOAPM2         30 <td>0047</td> <td><b>V</b></td> <td><b>a</b></td> <td>91001626</td> <td>10/01/91</td> <td></td> <td>XIX</td> <td>CALS0APM2</td> <td>8</td> <td>0.379</td> <td>2086</td> <td>2190</td> <td>4</td> <td>104</td>	0047	<b>V</b>	<b>a</b>	91001626	10/01/91		XIX	CALS0APM2	8	0.379	2086	2190	4	104
A         P         91001752         11/04/91         SIX         CALSOAPM2         30         0.322         1897           A         P         91001817         11/15/91         SIX         CALSOAPM2         30         0.379         2036           A         P         91001840         11/07/91         SIX         CALSOAPM2         30         0.379         2086           A         R         91001841         11/07/91         SIX         CALSOAPM2         30         0.379         2086           A         R         91001862         11/15/91         91001747         SIX         CALSOAPM2         30         0.311         1859           A         R         91001863         11/15/91         91001747         SIX         CALSOAPM2         30         0.311         2470           A         R         91001934         12/05/91         91001817         SIX         CALSOAPM2         30         0.318         2104           A         R         91001934         12/12/91         91001817         SIX         CALSOAPM2         30         0.386         2104           A         R         91001942         12/12/91         91001817         SIX         CALSOA	0048	<	۵.	91001747	11/04/91		SIX	CALSOAPM2	8	0.313	1866	1821	<b>2</b> .,	-45
A         F         91001817         11/15/91         SIX         CALSOAPM2         30         0.379         2036           A         F         91001840         11/07/91         SIX         CALSOAPM2         30         0.379         2086           A         R         91001841         11/07/91         SIX         CALSOAPM2         30         0.379         2086           A         R         91001862         11/15/91         91001747         SIX         CALSOAPM2         30         0.311         1859           A         R         91001924         12/06/91         91001747         SIX         CALSOAPM2         30         0.312         1852           A         R         91001934         12/06/91         91001817         SIX         CALSOAPM2         30         0.386         2101           A         R         91001934         12/06/91         91001817         SIX         CALSOAPM2         30         0.386         2104           A         R         91001942         12/12/91         91001817         SIX         CALSOAPM2         30         0.386         2104           A         R         91001942         12/12/91         9101817         SI	9049	<	۵.	91001752	11/04/91		XIS	CALS0APM2	8	0.322	1897	1845	<b>a.</b>	- 52
A         P         91001840         11/07/91         SIX         CALSOAPM2         30         0.379         2086           A         P         91001841         11/07/91         SIX         CALSOAPM2         30         0.486         2402           A         R         91001862         11/15/91         91001747         SIX         CALSOAPM2         30         0.311         1859           A         R         91001924         12/06/91         91001747         SIX         CALSOAPM2         30         0.311         2470           A         R         91001934         12/06/91         91001817         SIX         CALSOAPM2         30         0.386         2107           A         R         91001934         12/09/91         91001817         SIX         CALSOAPM2         30         0.386         2110           A         R         91001942         12/12/91         91001817         SIX         CALSOAPM2         30         0.386         2110           A         R         91001942         12/12/91         91001817         SIX         CALSOAPM2         30         0.482         2391           A         P         91001993         12/12/91         S	0500	<	۵,	91001817	11/15/91		SIX	CALSOAPM2	30	0.394	2133	2129	۵.	-
A         P         91001841         11/07/91         SIX         CALSOAPM2         30         0.486         2402           A         R         91001862         11/15/91         91001747         SIX         CALSOAPM2         30         0.311         1859           A         R         91001924         12/06/91         91001747         SIX         CALSOAPM2         30         0.311         1859           A         R         91001934         12/06/91         91001817         SIX         CALSOAPM2         30         0.311         2470           A         R         91001934         12/06/91         91001817         SIX         CALSOAPM2         30         0.386         21107           A         R         91001942         12/12/91         SIX         CALSOAPM2         30         0.387         2047           A         R         91001942         12/12/91         SIX         CALSOAPM2         30         0.482         2391           A         R         91001943         12/12/91         SIX         CALSOAPM2         30         0.500         2440           A         P         91001953         12/12/91         SIX         CALSOAPM2         30 </td <td>1500</td> <td>&lt;</td> <td>ρ.,</td> <td>91001840</td> <td>11/0/11</td> <td></td> <td>XIX</td> <td>CALSOAPM2</td> <td>8</td> <td>0.379</td> <td>2086</td> <td>2036</td> <td><b>24</b>,</td> <td>- 50</td>	1500	<	ρ.,	91001840	11/0/11		XIX	CALSOAPM2	8	0.379	2086	2036	<b>24</b> ,	- 50
A         R         91001862         11/15/91         91001747         SIX         CALSOAPM2         30         0.311         1859           A         R         91001863         11/15/91         91001747         SIX         CALSOAPM2         30         0.312         1862           A         R         91001924         12/06/91         91001877         SIX         CALSOAPM2         30         0.312         2470           A         R         91001934         12/09/91         91001817         SIX         CALSOAPM2         30         0.386         2107           A         R         91001942         12/09/91         91001817         SIX         CALSOAPM2         30         0.386         2107           A         R         91001942         12/12/91         SIX         CALSOAPM2         30         0.386         2391           A         P         91001943         12/12/91         SIX         CALSOAPM2         30         0.482         2391           A         P         91001951         12/12/91         SIX         CALSOAPM2         30         0.303         1828           A         P         92000043         01/16/92         SIX         CALSOA	0052	<	۵.	91001841	11/0/11		XIX	CALSOAPM2	8	0.486	2402	2362	<b>a</b> .	0+-
A         R         91001863         11/15/91         9100147         SIX         CALSOAPM2         30         0.312         1862           A         F         91001924         12/06/91         SIX         CALSOAPM2         30         0.311         2470           A         R         91001934         12/09/91         91001817         SIX         CALSOAPM2         30         0.386         2107           A         R         91001942         12/09/91         91001817         SIX         CALSOAPM2         30         0.388         2114           A         R         91001942         12/12/91         SIX         CALSOAPM2         30         0.386         2104           A         R         91001943         12/12/91         SIX         CALSOAPM2         30         0.482         2391           A         P         91001951         12/12/91         SIX         CALSOAPM2         30         0.360         2440           A         P         91001975         12/12/91         SIX         CALSOAPM2         30         0.334         1904           A         P         92000043         01/16/92         SIX         CALSOAPM2         30         0.381	1053	<	æ	91001862	11/15/91	91001747	XIS	CALS0APM2	96	0.311	1859	1865	Δ,	•
A         P         91001924         12/06/91         SIX         CALSOAPM2         30         0.511         2470           A         R         91001933         12/09/91         91001817         SIX         CALSOAPM2         30         0.386         2107           A         R         91001942         12/09/91         91001817         SIX         CALSOAPM2         30         0.386         2107           A         R         91001942         12/12/91         SIX         CALSOAPM2         30         0.387         2047           A         P         91001943         12/12/91         SIX         CALSOAPM2         30         0.482         2391           A         P         91001951         12/12/91         SIX         CALSOAPM2         30         0.500         2440           A         P         91001975         12/12/91         SIX         CALSOAPM2         30         0.303         1828           A         P         92000043         01/16/92         SIX         CALSOAPM2         30         0.381         2092           A         P         92000220         02/24/92         SIX         CALSOAPM2         30         0.381         2092	054	<	æ	91001863	11/15/91	91001747	SIX	CALS0APM2	8	0.312	1862	1878	۵.	91
A         R         91001933         12/09/91         91001817         SIX         CALSOAPM2         30         0.386         2107           A         R         91001934         12/09/91         91001817         SIX         CALSOAPM2         30         0.386         2114           A         R         91001942         12/12/91         SIX         CALSOAPM2         30         0.367         2047           A         P         91001951         12/12/91         SIX         CALSOAPM2         30         0.482         2391           A         P         91001953         12/12/91         SIX         CALSOAPM2         30         0.482         2391           A         P         91001975         12/12/91         SIX         CALSOAPM2         30         0.303         1828           A         P         92000043         01/16/92         SIX         CALSOAPM2         30         0.324         1904           A         P         92000220         02/24/92         SIX         CALSOAPM2         30         0.381         2092           A         P         92000220         02/24/92         SIX         CALSOAPM2         30         0.381         2092	0055	<	۵.	91001924	12/06/91		XIX	CALSOAPM2	8	0.511	2470	2591	<b>م</b>	121
A         R         91001934         12/09/91         91001817         SIX         CALSOAPM2         30         0.388         2114           A         R         91001942         12/12/91         SIX         CALSOAPM2         30         0.367         2047           A         P         91001943         12/12/91         SIX         CALSOAPM2         30         0.482         2391           A         P         91001951         12/12/91         SIX         CALSOAPM2         30         0.500         2440           A         P         92000043         01/16/92         SIX         CALSOAPM2         30         0.303         1828           A         P         92000043         01/16/92         SIX         CALSOAPM2         30         0.381         2094           A         P         92000220         02/24/92         SIX         CALSOAPM2         30         0.381         2092	900	<	~	91001933	12/09/91	91001817	SIX	CALSOAPM2	30	0.386	2107	2213	۵,	106
A         R         91001942         12/12/91         SIX         CALSOAPM2         30         0.367         2047           A         R         91001943         12/12/91         SIX         CALSOAPM2         30         0.482         2391           A         P         91001951         12/12/91         SIX         CALSOAPM2         30         0.500         2440           A         P         91001975         12/12/91         SIX         CALSOAPM2         30         0.303         1828           A         P         92000043         01/16/92         SIX         CALSOAPM2         30         0.324         1904           A         P         92000220         02/24/92         SIX         CALSOAPM2         30         0.381         2092	2057	<	æ	91001934	12/09/91	91001817	SIX	CALSOAPM2	8	0.388	2114	2155	۵.	7
A         R         91001943         12/12/91         SIX         CAL.SOAPM2         30         0.482         2391           A         P         91001951         12/12/91         SIX         CAL.SOAPM2         30         0.500         2440           A         P         91001975         12/12/91         SIX         CAL.SOAPM2         30         0.303         1828           A         P         92000043         01/15/92         SIX         CAL.SOAPM2         30         0.492         2419           A         P         92000220         02/24/92         SIX         CAL.SOAPM2         30         0.381         2092	900	<	~	91001942	12/12/91		SIX	CALS0APM2	8	0.367	2047	2148	۵,	101
A         P         91001951         12/12/91         SIX         CALSOAPM2         30         0.500         2440           A         P         91001975         12/12/91         SIX         CALSOAPM2         30         0.303         1828           A         P         92000043         01/16/92         SIX         CALSOAPM2         30         0.324         1904           A         P         92000071         01/17/92         SIX         CALSOAPM2         30         0.492         2419           A         P         92000220         02/24/92         SIX         CALSOAPM2         30         0.381         2092	9059	<	~	91001943	12/12/91		SIX	CALSOAPM2	8	0.482	2391	2466	۵.	75
A         P         91001975         12/12/91         SIX         CALSOAPM2         30         0.303         1828           A         P         92000043         01/16/92         SIX         CALSOAPM2         30         0.324         1904           A         P         92000071         01/17/92         SIX         CALSOAPM2         30         0.492         2419           A         P         92000220         02/24/92         SIX         CALSOAPM2         30         0.381         2092	990	<	۵.	91001951	12/12/91		SIX	CALSOAPM2	8	0.500	2440	2564	۵.,	124
A         P         92000043         01/16/92         SIX         CALSOAPM2         30         0.324         1904           A         P         92000071         01/17/92         SIX         CALSOAPM2         30         0.492         2419           A         P         92000220         02/24/92         SIX         CALSOAPM2         30         0.381         2092	1906	<	۵.	91001975	12/12/91		SIX	CAL50APM2	2	0.303	1828	1844	<u>م</u>	91
A P 92000071 01/17/92 SIX CALSOAPM2 30 0.492 2419 A P 92000220 02/24/92 SIX CALSOAPM2 30 0.381 2092	062	<	Δ,	92000043	01/16/92		SIX	CALSOAPM2	8	0.324	1904	1922	۵,	2
A P 92000220 02/24/92 SIX CALSOAPM2 30 0.381 2092	063	<	۵,	92000071	01/17/92		SIX	CALS0APM2	8	0.492	2419	2513	<u>م</u>	3
	790	<	۵.	92000220	02/24/92		SIX	CALSOAPM2	2	0.381	2092	2139	<u>م</u>	43

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.50 AF M2 DATABASE MODULE 5: CHEMICAL COMPOSITIONS

ARL/MD ID	C [WT%]	MN WT&	SI	NI IWI%I	CR IWT%	MO WT%	V [WT%]	B [WT%]	CU [WT%]	P [WT%]	S [WT%]	ZR	AL (WT%)
50AC0001	0.2900	0.8800	0.4400	0.9900	0.5400	0.5400	0.0030		0.1700	0.0070	0.0010		0.0260
S0AC0002	0.2900	0.8400	0.4300	0.9400	0.5000	0.5400	0.0030	0.0003	0.1200	0.0080	0.0030	0.0040	0.3700
50AC0003	0.2800	1.4100	0.3100			0.2800		0.0011		0.0080	0.0020		
50AC0004	0.2900	0.8600	0.4300	0.9400	0.5000	0.5600	0.0030	0.0004	0.0900	0.0050	0.0010	0.0040	0.0270
50AC0005	0.2900	0.8700	0.4900	0.9700	0.5200	0.5500	0.0040		0.1600	0.0010	0.0010		0.0230
<b>20AC0006</b>	0.2900	0.9200	0.4500	0.9000	0.5100	0.5700	0.0030		0.1400	0.0070	0.0010		0.0290
S0AC0007	0.2700	0.8200	0.4700	0.9300	0.5000	0.5600	0.0040		0.1000	0.0050	0.0030	0.0030	0.0390
50AC0008	0.2800	1.4100	0.3000			0.2700		0.0015		0.0070	0.0030		
50AC0009	0.2900	1.3900	0.3000			0.3000		0.0016		0.0100	0.0040		
50AC0010	0.2800	0.9100	0.4300	0.9200	0.5100	0.5300	0.0050		0.1100	0.0060	0.0030		0.0210
50AC0011	0.3200	0.4900	0.2400	0.1500	0.9600	0.2000	0.0050		0.1300	0.0070	0.0030		0.0100
50AC0012	0.3000	0.9100	0.4300	0.9800	0.5600	0.5600	0.0030		0.1500	0.0070	0.0020		0.0230
<b>50AC0013</b>	0.3200	0.8900	0.4300	1.0000	0.5500	0.5400			0.1000	0.0120	0.0020	0.0030	0.0300
50AC0014	0.2900	0.8600	0.4500	1.1000	0.5500	0.5700			0.1000	0.0080	0.0020	0.0040	0.0350
S0AC0015	0.2700	1.3900	0.3000			0.2600		0.0017		0.0000	0.0030		
<b>50AC0016</b>	0.2900	1.3800	0.3000			0.2800		0.0015		0.0090	0.0020		
50AC0017	0.2700	1.3900	0.3000			0.2600		0.0017		0.0000	0.0030		
50AC0018	0.2900	1.3800	0.3000			0.2800		0.0015		0.0000	0.0020		
50AC0019	0.2900	1.3800	0.3000			0.2800		0.0015		0.0000	0.0020		
50AC0020	0.2800	0.7300	0.3000	0.4600	0.5000	0.2500	0.0050	0.0019	0.0020	0.0100	0.0000		0.0440
50AC0021	0.2800	0.7300	0.3000	0.4600	0.5000	0.2500	0.0050	0.0019	0.0020	0.0100	0.0000		0.0490
50AC0022	0.2800	0.7300	0.3000	0.4600	0.5000	0.2500		0.0019	0.0020	0.0100	0.0090		0.0490
50AC0023	0.2800	1.3700	0.2700			0.2700		0.0010		0.0120	0.0030		
<b>50AC0024</b>	0.2900	1.3900	0.3100			0.2700		0.0012		0.0070	0.0020		
50AC0025	0.2800	1.3700	0.2600			0.2600		0.0011		0.0080	0.0030		
50AC0026	0.2900	0.9000	0.4200	0.9400	0.5000	0.5600			0.1600	0.0100	0.0060	0.0030	0.0160
S0AC0027	0.2900	0.8500	0.4900	0.9700	0.5000	0.5800			0.1100	0.0120	0.0030	0.0030	0.0340
50AC0028	0.3000	0.9100	0.4300	1.0500	0.5500	0.5500	0.003		0.1000	0.0000	0.0010		0.0400
\$0AC0029	0.3000	0.9100	0.4300	1.0500	0.5500	0.5500	0.0030		0.1000	0.0000	0.0010		0.0400
50AC0030	0.2900	0.9000	0.4500	0.9400	0.5000	0.5600			0.1600	0.0100	0.0060	0.0030	0.0160
50AC0031	0.3000	0.9000	0.4400	1.0600	0.5600	0.5500	0.0030		0.1100	0.0080	0.0010		0.0410
50AC0032	0.3100	0.9000	0.4500	1.0400	0.5600	0.5600	0.0040		0.1200	0.0000	0.0030		0.0330
50AC0033	0.3100	0.8100	0.3100	0.4700	0.5000	0.2500		0.0010		0.0140	0.0110		0.0450
50 A C 0034	0.200	0.8900	0.4200	0.9400	0.3000	0.5500	0.0030		200	0.0000	0.0010		0.770
50AC0035	0.2500	0.5500	0.2300	0000	0 5 100	0.2800			0 1600	0.000	0.0020	0500	0000
50 A C 0037	0 2200	0.2000	2460	0.7500	0015.0	2400		\$100.0		9100	0.00		0.70.0
50AC0038	0.2800	0.7600	0.3200	0.4600	0.5000	0.2500		0.0008		0110	0.110		0.0570
50AC0039	0.3100	0.8600	0.4400	0.9000	0.5000	0.5600			0.1200	0.0110	0.0020	0.0030	0.0380
50AC0040	0.2600	0.8500	0.4100	0.9100	0.5000	0.5300	0.0050		0.1200	0.0000	0.0020	0.0040	0.0260
50AC0041	0.2600	0.8500	0.4100	0.9100	0.5000	0.5300	0.0050		0.1200	0.0000	0.0020	0.0040	0.0260
50AC0042	0.3000	0.8700	0.4100	0.9000	0.5000	0.5600	0.0030	0.0003	0.0900	0.0080	0.0020	0.0030	0.0250
50AC0043	0.3000	0.9000	0.4400	0.9200	0.5100	0.5500	0.0030		0.1300	0.0000	0.0020		0.0400
<b>50AC0044</b>	0.2900	1.3600	0.2800			0.2800		0.0013		0.0000	0.0020		
50AC0045	0.3100	0.8800	0.4300	0.8700	0.5000	0.5500	0.0040		0.1100	0.0000	0.0010		0.0360
50AC0046	0.2500	1.3400	0.3000			0.3400		0.0017		0.0070	0.0020		

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CSTA-ARL/MD JOINT EPFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.50 AP M2
DATABASE MODULE 5: CHEMICAL COMPOSITIONS

SACCORDIS   0.0040   0.0050	ARL/MD ID	TI [WT%]	SB [WT%]	AS [WT%]	SN [WT%]	PB [WT%]	[WT%]	O  %LM	H [WT%]	CB [WT%]	CO [ <b>W</b> T <b>%</b> ]
0.0220 0.0020 0.0020 0.0050 0.0080 0.0087 0.0087 0.0020 0.4000 0.0041 0.0020 0.0020 0.0080 0.0081 0.0082 0.0080 0.0082 0.	50AC0001	0.0040		0.0050			0.0056	0.0020	0.9000	0.0020	0.0100
0.0020 0.0020	50AC0002	0.0290	0.0020	0.0050	0.0090	0.0030	0.0087	0.0020	0.4000	0.0020	
0.00440 0.0022 0.0050 0.0050 0.00677 0.0020 1.5000 0.0250	50AC0004	0.0030	0.0020	0.0050	0.0080	0.0040					
0.0240 0.0250 0.0050 0.0050 0.0074 0.0020 0.2000 0.0240 0.0250 0.0060 0.0060 0.0060 0.0020 0.0074 0.0020 0.9000 0.0050 0.0060 0.	50AC0005	0.0040		0.0050			0.0067	0.0020	1.5000		0.0130
0.0250 0.0250 0.0050 0.0050 0.0050 0.0074 0.0020 0.9000 0.0250 0.0050 0.	50AC0006	0.0040		0.0050			0.0067	0.0020	0.2000	0.0020	0.0110
0.00240 0.0020 0.0050 0.0050 0.0067 0.0020 0.9000 0.0059 0	50AC0007	0.0290	0.002							0.0040	
0.0220 0.0053 0.00520	50AC0008			•							
0.02240 0.0020 0	50AC0009										
0.0059 0.0059 0.0050	50AC0010	0.0240		0.0050			0.0074	0.0020	0.9000	0.0010	0.0100
0.0056 0.0056 0.0056 0.0057	S0AC0011	0.0290									
0.0050 0.0020 0.0040 0.0050 0.0020 0.0420 0.0420 0.0070 0.0140 0.0030 0.0420 0.0270 0.0070 0.0140 0.0058 0.0058 0.0020 0.0420 0.0270 0.0070 0.0140 0.0140 0.0058 0.0020 0.9000 0.0030 0.0040 0.0040 0.0140 0.0140 0.0068 0.0020 0.9000 0.0030 0.0040 0.0050 0.0040 0.0140 0.0064 0.0020 0.9000 0.0040 0.0020 0.0050 0.0120 0.0030 0.0040 0.0020 0.0050 0.0050 0.0030 0.0030 0.0040 0.0020 0.0050 0.0050 0.0030 0.0030 0.0040 0.0020 0.0050 0.0050 0.0030 0.0030 0.0040 0.0020 0.0050 0.0050 0.0030 0.0030 0.0040 0.0020 0.0050 0.0050 0.0030 0.0030 0.0040 0.0020 0.0050 0.0050 0.0030 0.0030 0.0040 0.0020 0.0050 0.0050 0.0030 0.0030 0.0040 0.0020 0.0050 0.0050 0.0030 0.0030	S0AC0012	0.0050					0.0067	0.0020	0.6000	0.0020	0.0110
0.0030 0.0020 0.0060 0.0080 0.0030 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0440 0.0040 0.0040 0.0040 0.0040 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0.0050 0.0040 0.0050 0.0040 0.0050 0.0050 0.0040 0.0050	SOAC0013	0.0020	0.0020	0.0040	0.0000	0.0020					
0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0030 0.0020 0.0030 0.0030 0.0030 0.0040 0.0030 0.0040 0.0020	50AC0014	0.003	0.0020	0.0060	0.0080	0.0030					
0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.044	S0AC0015										
0.0420 0.04200 0.04200 0.04200 0.04200 0.04200 0.04200 0.04200 0.04200 0.04200 0.04200 0.04200 0.04200 0.0	S0AC0016										
0.0420 0.0420 0.0420 0.0420 0.0420 0.0030 0.0070 0.0070 0.0040 0.0030 0.0040 0.0030 0.0040 0.0030 0.0040 0.0030 0.0040 0.0030 0.0040 0.0030 0.0040 0.0020 0.0020 0.0020 0.0040 0.0020	S0AC0017										
0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0030 0.0040 0.0030 0.0040 0.0020 0.0050 0.0040 0.0020 0.0050	50AC0018										
0.0420 0.0420 0.0420 0.0420 0.0420 0.0420 0.0030 0.0070 0.0040 0.0030 0.0040 0.0030 0.0050 0.0050 0.0040 0.0050 0.0050 0.0050 0.0040 0.0050	SOAC0019										
0.0420 0.0420 0.0420 0.0420 0.0420 0.0030 0.0040 0.0040 0.0040 0.0040 0.0040 0.0058 0.0058 0.0020 0.0050	S0AC0020	0.0420									
0.0420 0.0030	S0AC0021	0.0420									
0.0030 0.0030 0.0070 0.0140 0.0030 0.0068 0.0020 0.9000 0.0030 0.0030 0.0030 0.0020 0.0040 0.0040 0.00140 0.0030 0.0068 0.0020 0.9000 0.0030 0.0030 0.0040 0.0030 0.0040 0.0030 0.0050 0.0050 0.0030 0.0040 0.0030 0.0050 0.0030 0.0040 0.0020 0.0030 0.0030 0.0030 0.0030 0.0030 0.0030 0.0030 0.0040 0.0020 0.0030 0.0030 0.0030 0.0030 0.0030 0.0030 0.0030 0.0040 0.0020 0.0030	S0AC0022	0.0420									
0.0030 0.0030 0.0070 0.0140 0.0030 0.0068 0.0020 0.9000 0.0030 0.0030 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0050 0.0040 0.0050 0.0050 0.0050 0.0050 0.0040 0.0050 0	50AC0023										
0.0030 0.0030 0.0070 0.0140 0.0030 0.0068 0.0020 0.9000 0.0030 0.0030 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0050 0.0058 0.0020 0.9000 0.0030 0.0040 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0030 0.0040 0.0020 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0020 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0020 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0	S0AC0024										
0.0030 0.0030 0.0070 0.0140 0.0030 0.0068 0.0020 0.9000 0.0030 0.0030 0.0068 0.0020 0.9000 0.0030 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0	S0AC0025										
0.0270 0.0020 0.0070 0.0140 0.0030 0.0068 0.0020 0.9000 0.0030 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0050 0.0040 0.0050 0	S0AC0026	0.0030	0.0030	0.0070	0.0140						
0.0030 0.0040 0.0040 0.0068 0.0020 0.9000 0.0030 0.0030 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0030 0.0040 0.0040 0.0030 0	50AC0027	0.0270	0.0020	0.0070	0.0140	0.0030					
0.0030 0.0040 0.0048 0.0020 0.0020 0.9000 0.0030 0.0030 0.0070 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0050 0.0040 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0.0050 0.0050 0.0030 0.0030 0.0050 0	50AC0028	0.0030		0.0040			0.0068	0.0020	0.9000	0.0030	0.0000
0.0030 0.0070 0.0140 0.0030 0.0070 0.0140 0.0030 0.0046 0.0050 0.0040 0.0050 0.0040 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0	50AC0029	0.0030		0.0040			0.0068	0.0020	0.9000	0.0030	0.0000
0.0030 0.0040 0.0050 0.0064 0.0050 0.0064 0.0020 0.4000 0.0030 0.0050 0	50AC0030	0.0030	0.0030	0.0070	0.0140						
0.0040 0.0050 0.0050 0.0050 0.0064 0.0020 0.4000 0.0030 0.0040 0.0050 0	S0AC0031	0.0030		0.0040							
0.0040 0.0040 0.0050	S0AC0032	0.0040		0.0050							
0.0040 0.0050 0.0050 0.0064 0.0020 0.4000 0.0030 0.0030 0.0020 0.4000 0.0020 0.0030 0.0020 0.0030 0.0030 0.0030 0.0030 0.0030 0.0030 0.0030 0.0030 0.0030 0.0030 0.0030 0.0030 0.0030 0.0040 0.0020 0.0050 0.0050 0.0030 0.0030 0.0030 0.0040 0.0040 0.0050 0.0050 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0.0040 0.0050 0.0040 0	S0AC0033	0.0390									
0.0030 0.0020 0.0060 0.0120 0.0030 0.0020 0.0050 0.0120 0.0030 0.0030 0.0050 0.0050 0.0050 0.0050 0.0030 0.0030 0.0050 0	50AC0034	0.0040		0.0050			0.0064	0.0020	0.4000	0.0020	0.0110
0.0030 0.0020 0.0060 0.0050 0.0050 0.0050 0.0030 0.0030 0.0030 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0.0050 0.0050 0.0050 0.0030 0.0030 0.0040 0.0050 0.0050 0.0050 0.0050 0.0030 0.0030 0.0000 0.0050 0	S0AC0035										
0.0200 0.0√20 0.0040 0.0030 0.0050	S0AC0036	0.0030	0.0020	0.0060							
0.0040 0.0030 0.0050 0.0120 0.0030 0.0030 0.0040 0.0020 0.0050 0.0080 0.0030 0.0040 0.0020 0.0050 0.0080 0.0030 0.0040 0.0050 0.0050 0.0080 0.0030 0.0040 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0050 0.0000 0.0000	S0AC0037	0.0200									
0.0040         0.0030         0.0050         0.0120         0.0030           0.0040         0.0020         0.0050         0.0080         0.0030           0.0040         0.0020         0.0050         0.0080         0.0030           0.0040         0.0050         0.0050         0.0030         0.4000           0.0040         0.0040         0.0040         0.0040         0.0020         0.7000	50AC0038	0.4.30									
0.0040 0.0020 0.0050 0.0080 0.0030 0.0040 0.0020 0.0050 0.0080 0.0030 0.0040 0.0050 0.0050 0.0050 0.0040 0.0040 0.0050 0.0060 0.0000 0.0000	50AC0039	0.0040	0.0030	0.0050	0.0120	0.0030					
0.0040 0.0020 0.0050 0.0080 0.0030 0.0040 0.0020 0.0050 0.0050 0.0040 0.0040 0.0040 0.0040 0.0020 0.7000	S0AC0040	0.0040	0.0020	0.0050	0.0080	0.0030					
0.0040         0.0050         0.0050         0.0030         0.4000           0.0040         0.0040         0.0040         0.0020         0.7000	S0AC0041	0.0040	0.0020	0.0050	0.0080	0.0030					
0.0040         0.0050         0.0050         0.4000           0.0040         0.0040         0.0020         0.7000	50AC0042	0.0040	0.0020	0.0050							
0.0040 0.0020 0.7000	50AC0043	0.0040		0.0050			0.0073	0.0030	0.4000	0.0030	0.0100
0.0040 0.0020 0.7000	SOAC0044										
	50AC0045	0.0040		0.0040			0.0080	0.0020	0.7000	0.0020	0.0120
	50AC0046										

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.50 AP M2 DATABASE MODULE 5: CHEMICAL COMPOSITIONS

ARL/MD ID	C [WT%]	MN [WT%]	SI [WT%]	NI [WT%]	CR [WT%]	MO [WI%]	V [WT%]	B [WT%]	cu [WT%]	P [WT%]	S [WT%]	ZR [WT%]	AL [WTS]
50AC0047	0.2900	1.3500	0.2900			0.2800		0.0011		0.0080	0.0020	;           	,             
50AC0048	0.2800	0.8200	0.4300	0.9200	0.4900	0.5500	0.0020		0.1200	0.0070	0.0010	0.0030	0.0350
SOAC0049	0.2500	1.3400	0.3000			0.3400		0.0017		0.0070	0.0020		
50AC0050	0.3000	0.8300	0.4500	0.9700	0.5000	0.5400	0.0060		0.1100	0.0060	0.0020	0.0030	0.0340
50AC0051	0.2800	0.8900	0.2700	0.9400	0.5300	0.3500	0.0300	0.0020		0.0060	0.0020		
S0AC0052	0.2800	0.8900	0.2700	0.9400	0.5300	0.3500	0.0300	0.0020		0.0060	0.0020		
50AC0053	0.2800	0.8200	0.4300	0.9200	0.4900	0.5500	0.0020		0.1200	0.0070	0.0010	0.0030	0.0350
50AC0054	0.2800	0.8200	0.4300	0.9200	0.4900	0.5500	0.0020		0.1200	0.0070	0.0010	0.0030	0.0350
<b>S0AC0055</b>	0.2800	0.8200	0.4300	0.9200	0.4900	0.5500	0.0020		0.1200	0.0070	0.0010	0.0030	0.0350
50AC0056	0.3000	0.8300	0.4500	0.9700	0.5000	0.5400	0.0060		0.1100	0.0060	0.0020	0.0030	0.0340
S0AC0057	0.3000	0.8300	0.4500	0.9700	0.5000	0.5400	0900		0.1100	0.0060	0.0020	0.0030	0.0340
50AC005\$	0.2800	0.8900	0.2700	0.9400	0.5300	0.3500	0.0300	0.0020		0.0060	0.0020		
S0AC0059	0.2800	0.8900	0.2700	0.9400	0.5300	0.3500	0.0300	0.0020		0.0060	0.0020		
S0AC0060	0.2800	0.8100	0.4300	0.9000	0.5000	0.5400	0.0030		0.1200	0.0060	0.0020	0.0030	0.0230
S0AC0061	0.2800	0.7600	0.2700	0.4900	0.5300	0.2400		0.0007	0.0010	0.0000	0.0070		0.0410
S0AC0062	0.3000	0.5000	0.2400	0.2600	1.0000	0.1900	0.0040		0.2100	0.0070	0.0040	0.0010	0.0050
S0AC0063	0.2500	0.7300	0.2500	0.4300	0.4900	0.2400		0.0015	0.0010	0.0070	0.0070		0.0650
50AC0064	0.2800	0.8200	0.4300	0.9200	0.4900	0 5500	0.000		0.1200	0.0070	0.00.0	0.000	0.0250

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: CAL 0.50 AP M2
DATABASE MODULE 5: CHEMICAL COMPOSITIONS

0.0100 0.0020 0.0054 0.0010 0.3000 0.0100 0.0020 0.0054 0.0010 0.3000 0.0100 0.0020 0.0054 0.0010 0.3000 0.0100 0.0020 0.0054 0.0010 0.3000 0.0170 0.0020 0.0053 0.0020 0.3000	ARL/MD ID	TI [WT%]	SB [WT%]	AS [WT%]	SN [WT%]	PB [WT%]	N [WT%]	0 [WT%]	H [WT%]	CB [WT%]	CO [WT%]
0.0030         0.0020         0.00660         0.0100         0.0020         0.0054         0.0010         0.3000           0.0030         0.0020         0.00660         0.0100         0.0020         0.0010         0.3000           0.0030         0.0020         0.0060         0.0100         0.0020         0.0010         0.3000           0.0036         0.0020         0.0100         0.0020         0.0020         0.0010         0.3000           0.0260         0.0020         0.0100         0.0020         0.0054         0.0010         0.3000           0.0260         0.0020         0.0060         0.0100         0.0020         0.0054         0.0010         0.3000           0.0260         0.0020         0.0060         0.0100         0.0020         0.0010         0.3000           0.0290         0.0020         0.0070         0.0170         0.0020         0.0020         0.3000           0.0320         0.0020         0.0060         0.0100         0.0020         0.0020         0.3000	50AC0047	;   			; ; ; ; ; ;	i 	i 	i 		: ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !	! ! ! !
0.00560         0.0020         0.00660         0.0100         0.0020         0.0010         0.3000           0.00340         0.0020         0.00660         0.0100         0.0020         0.0020         0.0020           0.00340         0.0020         0.0060         0.0100         0.0020         0.0020         0.0010           0.00360         0.0020         0.0060         0.0100         0.0020         0.0010         0.3000           0.0260         0.0020         0.0020         0.0020         0.0020         0.0010         0.3000           0.0260         0.0020         0.0060         0.0100         0.0020         0.0010         0.3000           0.0290         0.0020         0.0070         0.0170         0.0020         0.0020         0.3000           0.0320         0.0020         0.0070         0.0170         0.0020         0.0020         0.3000	50AC0048	0.0030	0.0020	0.0060	0.0100	0.0020					
0.0260         0.0020         0.0060         0.0100         0.0020         0.0010         0.3000           0.0030         0.0020         0.0060         0.0100         0.0020         0.0020         0.3000           0.0030         0.0020         0.0100         0.0020         0.0020         0.0010         0.3000           0.0260         0.0020         0.0100         0.0020         0.0024         0.0010         0.3000           0.0260         0.0020         0.0100         0.0020         0.0054         0.0010         0.3000           0.0260         0.0020         0.0060         0.0100         0.0020         0.0054         0.0010         0.3000           0.0290         0.0020         0.0060         0.0070         0.0070         0.0020         0.3000           0.0320         0.0020         0.0070         0.0170         0.0020         0.0020         0.3000	S0AC0049										
0.0030 0.0020 0.0060 0.0100 0.0020 0.0030 0.0020 0.0060 0.0100 0.0020 0.0030 0.0020 0.0060 0.0100 0.0020 0.0260 0.0020 0.0060 0.0100 0.0020 0.0054 0.0010 0.3000 0.0260 0.0020 0.0060 0.0100 0.0020 0.0054 0.0010 0.3000 0.0290 0.0020 0.0070 0.0170 0.0020 0.0320 0.0020 0.0060 0.0100 0.0020 0.0053 0.0020 0.3000	SOAC0050	0.0260	0.0020	0.0060	0.0100	0.0020	0.0054	0.0010	0.3000	0.0030	
0.0030         0.0020         0.0020         0.0020         0.0020           0.0030         0.0020         0.0100         0.0020         0.0020           0.0030         0.0020         0.0100         0.0020         0.0020           0.0260         0.0020         0.0100         0.0020         0.0010         0.3000           0.0260         0.0020         0.0020         0.0010         0.0020         0.0010         0.3000           0.0290         0.0020         0.0070         0.0170         0.0020         0.0020         0.3000           0.0320         0.0020         0.0070         0.0170         0.0020         0.0020         0.3000	50AC0051								1		
0.0030         0.0020         0.0060         0.0100         0.0020           0.0030         0.0020         0.0060         0.0100         0.0020           0.0030         0.0020         0.0100         0.0020         0.0020           0.0260         0.0020         0.0100         0.0020         0.0010         0.3000           0.0260         0.0020         0.0020         0.0010         0.3000         0.3000           0.0290         0.0020         0.0070         0.0170         0.0020         0.0020         0.3000           0.0320         0.0020         0.0020         0.0020         0.0020         0.3000         0.3000	50AC0052										
0.0030         0.0020         0.0020         0.0020         0.0020           0.0030         0.0020         0.0100         0.0020         0.0020           0.0260         0.0020         0.0100         0.0020         0.0020           0.0260         0.0020         0.0100         0.0020         0.0010         0.3000           0.0260         0.0020         0.0020         0.0010         0.3000         0.3000           0.0290         0.0020         0.0070         0.0170         0.0020         0.0020         0.3000           0.0320         0.0020         0.0060         0.0100         0.0020         0.0020         0.3000	S0AC0053	0.0030	0.0020	0.0060	0.0100	0.0020					
0.0030         0.0020         0.0020         0.0020         0.0020         0.0030         0.0010         0.3000           0.0260         0.0020         0.0020         0.0020         0.0054         0.0010         0.3000           0.0260         0.0020         0.0020         0.0054         0.0010         0.3000           0.0290         0.0020         0.0070         0.0070         0.0020         0.0020           0.0320         0.0020         0.0070         0.0170         0.0020         0.0020         0.3000           0.0320         0.0020         0.0020         0.0020         0.0020         0.3000         0.3000	50AC0054	0.0030	0.0020	0.0060	0.0100	0.0020					
0.0260         0.0020         0.0020         0.0054         0.0010         0.3000           0.0260         0.0020         0.0020         0.0054         0.0010         0.3000           0.0260         0.0020         0.0020         0.0010         0.3000           0.0290         0.0020         0.0070         0.0170         0.0020           0.0320         0.0020         0.0070         0.0170         0.0020           0.0320         0.0020         0.0060         0.0100         0.0020	50AC0055	0.0030	0.0020	0.0060	0.0100	0.0020					
0.0260         0.0020         0.0060         0.0100         0.0020         0.0010         0.3000           0.0030         0.0020         0.0070         0.0070         0.0020         0.0020         0.3000           0.0320         0.0020         0.0060         0.0170         0.0020         0.0020         0.3000	S0AC0056	0.0260	0.0020	0.0060	0.0100	0.0020	0.0054	0.0010	0.3000	0.0030	
0.0030 0.0020 0.0060 0.0070 0.0020 0.0200 0.0290 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020	50AC0057	0.0260	0.0020	0.0060	0.0100	0.0020	0.0054	0.0010	0.3000	0.0030	
0.0030 0.0020 0.0060 0.0070 0.0020 0.0290 0.0020 0.0070 0.0170 0.0020 0.0320 0.0020 0.0060 0.0100 0.0020 0.0020 0.3000	S0AC0058										
0.0030 0.0020 0.0060 0.0070 0.0020 0.0290 0.0020 0.0070 0.0170 0.0020 0.0320 0.0020 0.0060 0.0100 0.0020 0.0020 0.3000	50AC0059										
0.0290 0.0300 0.0020 0.0070 0.0170 0.0020 0.0320 0.0020 0.0060 0.0100 0.0020 0.0020 0.3000	SOAC0060	0.0030	0.0020	0.0060	0.0070	0.0020					
0.0300 0.0020 0.0070 0.0170 0.0020 0.0320 0.0020 0.0060 0.0100 0.0020 0.0053 0.0020 0.3000	50AC0061	0.0290									
0.0320 0.0030 0.0020 0.0060 0.0100 0.0020 0.0053 0.0020 0.3000	50AC0062	0.0300	0.0020	0.0070	0.0170	0.0020					
0.0030 0.0020 0.0060 0.0100 0.0020 0.0053 0.0020 0.3000	50AC0063	0.0320									
	S0AC0064	0.0030	0.0020	0.0060	0.0100	0.0020	0.0053	0.0020	0.3000	0.0030	

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API B32
DATABASE MODULE 1: MTL ID & MIL SPEC ATTRIBUTES DATABASE MODULE 2: PLATE PRODUCTION HISTORY

ARL/MD ID	MIL SPEC NO	SPEC	SPEC	SPEC MAT CL	PROD	PABR	HEAT TR	HEAT NO	LOT NO	PRODUCER PLATE NO
14AM0001	MIL - A - 46100	Q	 		 			321163	 	321163-2
14 A M 0002	MIL-A-46100	۵						663447		428
14AM0003	MIL-A-46100	ပ						B9195		B9195-39BE
14 A M0004	MIL-A-46100	۵						R0402		R0402-2DC
14 M 00005	MIL-A-46100	Q						435834		456
14 A M0006	MIL-A-46100	۵						663911		249
14 A M 0007	MIL - A - 46100	ပ						3252K		17421
14 A M 0008	MIL-A-46100	۵						B9838		B9838-4EC
14 A M 0009	MIL-A-46100	۵						500841		117-1
14 A M 0010	MIL-A-46100	Ω						500841		120
14AM0011	MIL-A-46100	ပ						R1042		R1042-3CF
14AM0012	MIL-A-46100	۵						B9838		B9838-39AC
14 A M 0013	MIL-A-46100	۵						400221		706
14 M M 0014	MIL-A-46100	ပ						5179J		27808
14AM0015	MIL-A-46100	ပ						9253L		Z7810A
14 A M 00 16	MIL-A-46100	ပ						74933		27783
14AM0017	MIL-A-46100	ပ						3866K		25855
14AM0018	MIL-A-46100	ပ						3252K		7.1809
14 A M 0019	MIL - A - 46100	Q						B4518		B4518-39FC
14 A M 0020	MIL-A-46100	Q						R2241		R2241-4CC
14AM0021	MIL-A-46100	Ω						600523		259
14 A M0022	MIL-A-46100	a						R3228		R3228-39AC
14 A M 0023	MIL-A-46100	۵						4859K		40522
14 A M0024	MIL-A-46100	۵						4860K		40521
14 A M 0025	MIL-A-46100	Ω						401520		71.6
14 A M 0026	MIL-A-46100	۵						580031		3726082
14 A M 0027	MIL-A-46100	۵						R3228		R3228-39AC1
14 A M 0028	MIL-A-46100	۵						R3228		R3228-39AC2
14 A M0029	MIL-A-46100	۵						R3935		R3935-39CC
14 A M 0030	MIL A 46100	Ω						R4241		R4241-1AI
14 M M 0031	MIL-A-46100	۵						92663		S4901A
14 A M0032	MIL-A-46100	۵						R3228		R3228-39AC
14 A M0033	MIL - A - 46100	Ω						R3935		R3935-39CC1
14 A M0034	MILA-46100	Ω						R3935		R3935-39CC2
14 A M0035	MIL-A-46100	Q						R3711		R3711
24 A 340.024	MII - A - 14100	_								

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API B32
DATABASE MODULE 3: MATERIALS PROPERTIES

!	PLATE TH	HARD	۵	LT	11	HARD	TEMP
ARL/MD ID	[NI]	[BRN]	[NOM]	[FT-LB]	[FT-L8]	[BRN]	(DEG P)
14 A M0001	0.752	514	7.84	23.3	18.0	11.7	1620
14AM0002	0.738	495	6.14	19.0	12.0	495	1650
14A M0003	0.586	486	98.9	21.3	26.0		1660
14AM0004	0.760	477	7.14	14.0	14.7		1660
14 A M0005	0.747	495	5.95	20.0	15.0	495	1650
14 A M0006	0.754	206	6.11	21.0	15.0	11.	1650
14AM0007	0.742	504	5.16	23.3	18.3	514	1562
14 A M0008	0.755	501	6.16	12.0	13.3		1660
14AM0009	0.728	495	7.99	16.0	11.0	495	1650
14AM0010	0.730	514	8.08	14.0	11.0	514	1650
14AM0011	0.572	507	7.10	21.7	28.3		1660
14AM0012	0.756	477	91.9	12.0	13.3		1660
14AM0013	0.758		6.22				1650
14AM0014	0.626	\$14	5.64	26.0	18.0		1562
14 A M 00 15	0.625	514	5.16	17.7	15.3		1562
14AM0016	0.760	\$14	5.55	16.3	10.7		1569
14AM0017	0.743	<b>48</b> 9	5.45	24.3	16.7		1562
14AM0018	0.640	514	5.19	25.7	19.0		1562
14 A M0019	0.634	464	5.88	16.0	17.3		1660
14 A M0020	0.763	<b>867</b>	5.67	30.0	30.7		1660
14 A M 0021	0.740	495	5.88	21.0	13.0	495	1650
14 A M0022	0.638	417	9.57	27.7	29.3		1660
14AM0023	0.766	486	4.85	28.7	21.0		1562
14 A M0024	0.761	486	5.01	722.7	18.3		1562
14 A M 0025	0.746	514	5.99	20.0	14.0	514	1650
14 A M0026	0.743	200	7.98	30.0	31.0		1683
14 A M 0027	0.631	477	5.23	27.7	29.3		1660
14 A M0028	0.629	477	5.19	27.7	29.3		1660
14 A M 0029	0.754	512	5.36	28.0	29.0		1660
14 A M 0030	0.751	<b>204</b>	6.73	18.7	18.0		1635
14 A M 0031	0.745	<b>867</b>	5.40	25.7	19.7		1573
14AM0032	929.0	512	5.23	20.3	22.7		1660
14A M0033	0.753	512	5.58	28.0	29.0		1660
14 A M0034	0.754	512	5.36	28.0	29.0		1660
14 A M0035	0.755	514	5.92	31.7	25.7	514	1600
760074 4 1 1							

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API B32
DATABASE MODULE 4: BALLISTIC PERFORMANCE

P = PASSF = PAII.

A = ACCEPTANCE
D = DEVELOPMENT
FA = FIRST ARTICLE
P = PRIMARY
R = RETEST

	TEST	SAMPLE			PAIL				ACT			PASS	<b>∠</b> EI
ARL/MD ID	<u>ت</u> ک	PRIM/RET [P/R]	FIRING RECORD	PIRING DATE	PIRING RECORD	TEST [NUM]	PROJECTILE	OBT (DEG)	PLATE TH	REQ VEL [FT/SEC]	ACT VEL [FT/SEC]	PAIL. [P/F]	DIFF
14AM0001	<b>V</b>		90001635	10/31/90		SIX	145MMAPIB32	<b>9</b> 8	0.752	2683	2826	<b>a.</b>	143
14AM0002	<	۵.	90001764	12/03/90		SIX	145MMAP1B32	8	0.738	2655	2780	<u>~</u>	125
14 A M0003	<	۵.	91000072	01/31/91		XIX	145MMAPIB32	8	0.586	2344	2392	۵.	<b>\$</b>
14AM0004	<	۵.,	91000303	03/04/91		SIX	<b>145MMAPIB32</b>	33	09.760	2698	2835	۵,	137
14 A M0005	<	۵.	91000450	03/04/91		SIX	145MMAPIB32	2	0.747	2673	2815	۵.	142
14AM0006	<	۵,	91000493	03/11/91		XIX	145MMAPIB32	8	0.754	2686	2911	<u>م</u>	225
14AM0007	<	۵.	91000693	04/18/91		XIX	145MMAPIB32	8	0.742	2663	2922	۵.,	259
14AM000	<	۵.	91000801	06/11/91		SIX	145MMAPIB32	8	0.755	2688	2830	۵.	142
14 A M 0009	βA		91000861	06/04/91		XIX	145MMAPIB32	ଝ	0.728	2636	2800	۵.	164
14AM0010	FA		91000862	06/04/91		XIX	145MMAPIB32	8	0.730	2640	2845	۵.	205
14AM0011	<	۵.	91000894	06/11/91		XIX	145MMAPIB32	8	0.572	2292	2490	۵.	198
14 A M 0012	<	۵.	91000987	06/11/91		SIX	145MMAPIB32	8	0.756	2690	2883	۵,	193
14AM0013	<	۵.	91001026	16/00/90		XIX	145MMAP1B32	2	0.758	2694	2881	۵.	187
14AM0014	<	۵.	91001090	06/01/91		XIS	145MMAPIB32	8	0.626	2430	2625	۵.	195
14 A M0015	<	۵.	91001091	06/01/91		XIX	145MMAP1B32	ଛ	0.625	2428	2581	۵.	153
14AM0016	<	۵.	91001147	16/80/10		XIX	145MMAP1B32	옸	092.0	2698	2924	۵.	226
14AM0017	<	Ω,	91001260	16/61/10		XIS	145MMAPIB32	8	0.743	2665	2827	٩.	162
14AM0018	<	۵.	91001290	07/29/91		XIX	<b>145MMAPIB32</b>	ଛ	0.640	2459	2609	a.	150
14AM0019	<	۵.	91001398	08/26/91		XIX	145MMAP1B32	2	0.634	2447	2486	٩.	39
14A M0020	≺	۵.	91001432	16/11/60		XIX	145MMAPIB32	ଛ	0.763	2703	2790	<u>.</u>	8.7
14AM0021	<	<u>م</u>	91001466	09/05/91		SIX	145MMAPIB32	8	0.740	2659	2709	<u>م</u>	20
14AM0022	<	۵.	9,001471	09/11/91		XIX	145MMAPIB32	옸	0.638	2455	2452	<b>~</b>	£ -
14AM0023	<	۵.	91001586	16/02/60		SIX	145MMAPIB32	2	0.766	2709	2948	<u>م</u>	239
14AM0024	<	۵.	91001590	09/30/91		SIX	145MMAPIB32	8	0.761	2700	2902	<u>م</u>	202
14 A M 0025	<	۵.	9,001687	10/00/01		XIS	145MMAPIB32	2	0.746	2671	2767	<u>م</u>	*
14 A M0026	<	۵.	51001842	11/03/11		SIX	145MMAP1732	ጽ	0.743	2665	2798	٠.	133
14AM0027	<	<b>~</b>	91001860	11/18/91	91001471	XIX	145MMAPIB32	8	0.631	2440	2439	<b>~</b>	-
14AM0028	<	×	91001861	11/18/91	91001471	XIS	145MMAPIB32	2	0.629	2436	2438	۵.	2
14 A M0029	<	۵.	91001923	12/06/91		SIX	145MMAPIB32	8	0.754	2686	2681	<b>-</b>	<u>s</u> -
14AM0030	<	۵.	91001952	12/12/91		XIX	145MMAPIB32	8	0.751	2681	2720	۵.	39
14AM0031	<	۵.	91001974	12/12/91		SIX	145MMAP1B32	8	0.745	2669	2852	<u>-</u>	183
14 A M 0032	<	۵.	91001997	12/18/91		XIX	145MMAPIB32	8	0.626	2430	2489	۵.	83
14 A M0033	<	œ	92000013	01/09/92	91001923	XIX	145MMAPIB32	2	0.753	2684	2820	_	136
14AM0034	<	œ	92000014	26/60/10	91001923	SIX	145MMAPIB32	8	0.754	2686	2719	۵.	33
14 A M 0035	<	۵.	92000247	02/26/92		SIX	145MMAPIB32	8	0.755	2688	2745	۵.	57
14AM0036	<	۵.	92000329	03/14/92		XIS	145MMAPIB32	8	0.752	2683	2788	۵.	105

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API B32
DATABASE MODULE 5: CHEMICAL COMPOSITIONS

ARL/MD ID	C [WT%]	MN [WT%]	SI [WT%]	NI [WT%]	CR [WT%]	MO [WT%]	V [WT%]	B [WT%]	CU [WT%]	P [WT%]	S [WT%]	ZR [WT%]	AL [WT%]
14AM0001	0.2900	1.0000	0.4300	0.5000	0.6400	0.2600		0.0020		0.0080	0.0020		0.0360
14 A M 0002	0.3000	1.5300	0.2300			0.5400		0.0007		0.0000	0.0040		
14 M 0003	0.3000	0.9100	0.4300	0.9800	0.5600	0.5600	0.0030		0.1500	0.0070	0.0020		0.0230
14 M 0004	0.3100	0.9300	0.4500	0.9500	0.5200	0.5900			0.1800	0.0100	0.0010	0.0030	0.0290
14A M00005	0.2800	1.4700	0.3000			0.5800		0.0011		0.0110	0.0020		
14AM0006	0.2800	1.5400	0.3100			0.5100		0.0015		0.0100	0.0020		
14AM0007	0.2800	0.7300	0.3000	0.4600	0.5000	0.2500	0.0050	0.0019	0.0020	0.0100	0.0000		0.0490
14 A M0008	0.2900	0.9000	0.4500	0.9400	0.5000	0.5600			0.1600	0.0100	0.0060	0.0030	0.0160
14 A M 0009	0.3000	0.9600	0.3800	0.6200	0.6000	0.3100		0.0013		0.0000	0.0020		
14 A M 0010	0.3000	0.9600	0.3800	0.6200	0.6000	0.3100		0.0013		0.0000	0.0020		
14 A M0011	0.3100	0.8900	0.4400	1.0300	0.5600	0.5600	0.0030		0.1300	0.0080	0.0020		0.0320
14AM0012	0.2900	0.9000	0.4500	0.9400	0.5000	0.5600			0.1600	0.0100	0.0060	0.0030	0.0160
14AM0013	0.2800	1.4800	0.3300	0.0050	0.0260	0.5500	0.0040	0.0014		0.0000	0.0020	0.0020	
14 A M0014	0.2700	0.7600	0.3500	0.4800	0.5300	0.2700		0.000		0.0030	0.0100		0.0400
14 A M0015	0.2800	0.7900	0.3100	0.4700	0.4800	0.2300		0.0012		0.0100	0600.0		0.0350
14 A M 00 16	0.2800	0.8100	0.3300	0.4600	0.5000	0.2500		0.0010		0.0150	0.0110		0.0420
14AM0017	0.2700	0.7800	0.2400	0.4800	0.5400	0.2400		0.0015		0.0110	0.0110		0.0410
14AM0018	0.2700	0.7200	0.2800	0.4600	0.4900	0.2500		0.0021		0.0100	0.0080		0.0410
14AM0019	0.3000	0.8400	0.4100	0.9000	0.5100	0.5500	0.0030		0.1200	0.0120	0.0030	0.0040	0.0340
14 A M 0020	0.2800	0.8600	0.4100	0.9500	0.5100	0.5500	0.0030		0.1600	0.0100	0.0010	0.0030	0.0290
14AM0021	0.2800	1.4700	0.3400			0.5500		0.0019		0.0100	0.0070		
14 A M 0022	0.2600	0.8500	0.4100	0.9100	0.5000	0.5300	0.0050	9000.0	0.1200	0.0000	0.0020	0.0040	0.0260
14AM0023	0.2700	0.7000	0.2500	0.4500	0.5100	0.2500		0.0017		0.0070	0.0000		0.0700
14 A M 0024	0.2700	0.7200	0.2500	0.4600	0.5200	0.2500		0.0017		0.0080	0.0070		0.0690
14AM0025	0.2700	1.4700	0.3300			0.5500		0.0013		0.0100	0.0030		
14 A M 0026	0.2800	0.8900	0.2700	0.9400	0.5300	0.3500	0.0300	0.0020		0.0060	0.0020		
14 A M 0027	0.2600	0.8500	0.4100	0.9100	0.5000	0.5300	0.0050		0.1200	0.0000	0.0020	0.0040	0.0260
14 A M0028	0.2600	0.8500	0.4100	0.9100	0.5000	0.5300	0.005		0.1200	0.0000	0.0020	0.0040	0.0260
14 A M 0029	0.2800	0.8200	0.4300	0.9200	0.4900	0.5500	0.0020		0.1200	0.0010	0.0010	0.0030	0.0350
14 A M 0030	0.3000	0.8800	0.4200	1.0000	0.5500	0.5400			0.1000	0.0060	0.0020	0.0020	0.0380
14 A M 0031	0.2800	0.7600	0.2800	0.4900	0.5300	0.2300		0.0014	0.0010	0.0080	0.0070		0.0400
14 A M 0032	0.2600	0.8500	0.4100	0.9100	0.5000	0.5300	0.0050		0.1200	0.0000	0.0020	0.0040	0.0260
14 A M 0033	0.2800	0.8200	0.4300	0.9200	0.4900	0.5500	0.0020		0.1200	0.0070	0.0010	0.0030	0.0350
14AM0034	0.2800	0.8200	0.4300	0.9200	0.4900	0.5500	0.0020		0.1200	0.0070	0.0010	0.0030	0.0350
14AM0035	0.3000	0.8300	0.4200	0.9700	0.5000	0.5400	0.0004		0.1100	0.0060	0.0020		0.0340
14A M0036	0.2600	1.4800	0.3200	0.0140	0.0050	0.5400		0.0013		0.0120	0.0030		

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API B32 DATABASE MODULE 5: CHEMICAL COMPOSITIONS

ARL/MD ID	TI [WT%]	SB [WT%]	AS [WT%]	SN [WT%]	PB [WT%]	N [WT%]	O [WT%]	H [WT%]	CB [WT%]	CO [WT%]
14AM0001	0.0360									
14AM0003	0.0050		0.0040						0.0020	0.0110
14 A M0004	0.0030	0.0030	0.0060	0.0140	0.0030					
14A M0006										
14AM0007	0.0420									
14 A M0008	0.0030	0.0030	0.0070	0.0140						
14AM0009										
14 M0010	07000		0 0000			92000	0.000	0000	0.000	0110
14AM0012	0.0030	0.0030	0.0070	0.0140						
14AM0013										
14AM0014	0.041									
14 A M 0015	0.0330									
14A M0016										
14AM0017	0.0200									
14AM0018	0.0400									
14AM0019	0.0040	0.0020	0.0040	0.0100	0.0010					
14A M0020	0.0030	0.0020	0.0060	0.0130	0.0030					
14 A M0021										
14AM0022	0.0040	0.0020	0.0050							
14AM0023	0.0340									
14 A M0024	0.0350									
14 M M 0026										
14A M0027	0.0040	0.0020	0.0050	0.0080	0.0030					
14 A M0028	0.0040	0.0020	0.0020	0.0080	0.0030					
14AM0029	0.0030	0.0020	0.0060	0.0100	0.0020					
14AM0030	0.0030	0.0020	0.0050	0.0080	0.0030					
14AM0031	0.0220									
14A M0032	0.0040	0.0020	0.0050	0.0080	0.0030					
14 A M0033	0.0030	0.0020	0.000	0.0100	0.0020					
14 A M0034	0.0030	0.0020	0.0060	0.0100	0.0020					
14AM0036						•				

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CSTA-ARL/MD JOINT EPFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API BS41
DATABASE MODULE 1: MTL ID & MIL SPEC ATTRIBUTES DATABASE MODULE 2: PLATE PRODUCTION HISTORY

Srec no	REV	AMD	SPEC MAT CL	PROD	PABR	HEAT TR	HEAT NO	LOT NO	PRODUCER PLATE NO
MIL-A-46100	ပ	2					C7407		C7407-5E
MIL-A-46100	ပ						B\$216		B\$216-2CIR1
MIL - A - 46100	ပ						B\$216		B\$216-2CIR2
MIL - A - 46100	ပ						B\$216		B\$216-4BI2
KIIL - A - 46100	۵						322650		322650-1
MIL - A - 46100	<u> </u>						663447		261R1
MIL-A-46100	Ω						663447		261R2
MIL-A-46100	ပ						B\$211		B\$211-1ABR1
MIL-A-46100	ပ						B\$211		B8211-1ABR2
MIL-A-46100	ပ						B\$211		B\$211-1AA
MIL-A-46100	ပ						B6801		B6801-3AA1
MIL-A-46100	ပ						B6201		B6801-2BA
MIL - A - 46100	Ü						B4165		B\$165-59AA
MII - A - 46100	Ü						R0105		R9195-1DA
MII - A - 46100	ى د						RAIA		B8164-54CA
411 A 44100	ء د						2736.		227661 1
00104~V-71	2 (	•					7.0776		1-100776
MIL - A - 46100	ا ن	7 (					KOOOS		K0005 - 39A
#IL-A-46100	ပ	7					B\$216		B\$216-5AB
MIL-A-46100	۵						B9838		B9838-1AD
KIIA-46100	ပ	7					B\$211		B8211-3AAR1
MIL-A-46100	ပ	7					B\$211		B\$211-3AAR2
MIL-A-46100	ပ	7					R0402		R0402-3FC
MIL-A-46100	ပ	7					R0279		R0279-3AP
MIL-A-46100	ပ	7					B8216		B\$216-3AL
MIL-A-46100	ပ	7					B9195		B9195-1DF
#IL-A-46100	ပ	7					R0407		R0407-1AC
<b>VIL - A - 46100</b>	ပ	7					R0407		R0407-4CC
MIL-A-46100	۵						R0279		R0279-1EC
#IL-A-46100	۵						R0402		R0402-1BD
MIL-A-46100	ပ						R0722		R0722-2BG
#IL-A-46100	ပ	7					R0755		R0755-4EF
MIL-A-46100	ပ	7					R0722		R0722-2AE
MIL-A-46100	ပ	7					R0722		R0722-39DF
MIL-A-46100	ပ	7					R0407		R0407-39RC
MIL-A-46100	ပ						R0279		R0279-5DC
MIL-A-46100	ပ	7					R0407		R0407-4GF
JIL-A-46100	ပ	7					R0722		R0722-3DF
MIL-A-46100	ပ	7					R0402		R0402-39DE
MIL-A-46100	ບ	7					R0407		R0407-1FBR1
KIL-A-46100	ບ						R0407		R0407-1PBR2
MIL-A-46100	ပ	7					B7247		R7247-1A
MIL-A-46100	ပ	7					R0005		R0005 - 5E
MIL-A-46100	Ü	7					R 1042		R1042-1DB
411 - A - 46100	2	1					200841		174
411 - A ~ 46100	ء د						500841		171
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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API BS41
DATABASE MODULE 1. MTL ID & MIL SPEC ATTRIBUTES DATABASE MODULE 2: PLATE PRODUCTION HISTORY

ARL/MD ID	MIL SPEC NO	MIL SPEC REV	SPEC	MAT CL	PROD	FABR	HEAT TR	HEAT NO	LOT NO	PRODUCER PLATE NO
14BM0048	MIL-A-46100	<b>C</b>	· · · · · · · · · · · · · · · · · · ·		; 1 1 1 1 1 1	! ! !	* * * * * * * * * * * * * * * * * * * *	R0402	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	R0402-1E1
14BM0049	MIL-A-46100	ပ						R0279		R0279-6GB
14 BM 0050	MIL-A-46100	ပ	7					R0402		R0402-2G
14BM0051	MIL-A-46100	۵						663912		30-1
14 BM 0052	MIL-A-46100	ပ	7					R0279		R0279-4DAR1
14 BM 0053	MIL-A-46100	ပ	7					R0279		R0279-4DAR2
14BM0054	MIL-A-46100	ပ	7					R 1042		R1042-39CF
14BM0055	MIL-A-46100	ပ	7					R0722		R0722-3CCR1
14 BM 0056	MIL-A-46100	ပ	7					R0722		R0722-3CCR2
14BM0057	MIL-A-46100	۵						501551		838
14BM0058	MIL-A-46100	ပ						R1450		R1450-1K
14BM0059	MIL-A-46100	Ω						B6609		B6609-1
14BM0060	MIL-A-46100	۵						R3228		R3228-39DD
14 BM 0061	MIL-A-46100	Ω						R3228		R3228-39BB2
14BM0062	MIL-A-46100	ပ						R3717		R3717-4DF1
14 BM 0063	MIL-A-46100	ပ	7					R3717		R3717-4DF2
14 BM0064	MIL-A-46100	ပ	7					R2241		R2241-6A
14 BM 0065	MIL-A-46100	۵						R3442		R3442-9AF
14BM0066	MIL-A-46100	۵						R3442		R3442-1A
14 BM 0067	MIL-A-46100	Q						R3442		R3442-11
14 BM 0068	MTL A 46100	۵						335042		1K0773
I & BM0069	MIL-A-46100	Ω						R3935		R3935-39BC
14 BM 0070	MIL-A-46100	۵						R4241		R4241-9BD
14 BM 0071	MIL-A-46100	Ω						R3442		R3442-11R2
14 BM 0072	MIL-A-46100	Q						R3442		R3442-1AR1
14BM0073	MIL-A-46100	۵						R3935		R3935-39BC1
14 BM 0074	MIL - A - 46100	۵						R4241		R4241-9BDR1
14BM0075	MIL-A-46100	۵						R4241		R4241-9BDR2
14 BM 0076	MILA-46100	۵						R4421		R4421-1AD
14BM0077	MIL-A-46100	۵						503231		7
14 BM 0078	MIL-A-46100	۵						R3442		R3442-11RR1
14 BM 0079	MIL-A-46100	۵						R3442		R3442-1ARR1
14 BM 0080	MIL-A-46100	۵						R4806		R4806
14 BM 0081	MIL-A-46100	Ω						R3935		R3935-39BCRR1
14BM0082	MIL-A-46100	۵						R 5048		R5048-2A

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API BS41
DATABASE MODULE 3: MATERIALS PROFERTIES

[18]   [BRN]   [NUM]   [PT-LB]   [BT-LB]   [BRN]   [DEG		PLATE TH	HARD	_				
0.773         477         7.30         10.0         12.0         477           0.783         512         7.78         30.3         29.3         49.3           0.773         512         7.78         30.3         29.3         49.5           0.773         512         7.78         20.3         29.3         49.5           1.006         495         5.89         16.6         12.6         49.5           1.006         495         5.89         16.6         12.6         49.5           0.776         514         7.01         15.0         20.7         49.5         49.6         49.5         20.7         49.7         49.7         49.7         49.7         49.7         49.7         50.7         20.7	ARL/MD ID	[IN]	(BRN)	[NOM]	(FT-LB)	[FT-LB]	[BRN]	(DFG P)
0.788         512         7.78         30.3         29.3           0.793         512         7.78         30.3         29.3           0.793         512         7.78         20.0         26.7           0.979         486         7.99         18.3         18.0         695           1.010         495         5.89         16.6         12.6         495           1.026         495         5.89         16.6         12.6         495           0.776         477         7.01         15.0         20.7         495         6.2         20.7           0.776         514         7.01         15.0         20.7         495         6.2         20.7         20.7           0.776         512         7.45         21.3         22.0         25.1         20.7 <td>14 BM 0001</td> <td>0.773</td> <td>477</td> <td>7.30</td> <td>10.01</td> <td>12.0</td> <td>477</td> <td>1550</td>	14 BM 0001	0.773	477	7.30	10.01	12.0	477	1550
0.793         512         7.78         30.3         29.3           0.773         486         7.78         30.3         29.0         26.7           0.977         486         7.99         18.3         18.0         495           0.774         477         7.01         15.0         20.7         495         10.0         495         519         12.6         495         10.0         495         10.0         10.0         10.0         495         10.0         10.0         10.0         495         495         10.0         10.0         10.0         495         495         10.0         20.7         10.0         20.7         10.0         20.7         10.0         20.7         <	14 BM 0002	0.788	512	7.78	30.3	29.3		1660
0.773         512         7.78         29.0         26.7           0.979         486         7.99         18.3         18.0         495           1.006         495         5.89         16.6         12.6         495           0.774         477         7.01         15.0         20.7         495         18.0         20.7           0.776         477         7.01         15.0         20.7         495         495         495         495         497	14 BM 0003	0.793	512	7.78	30.3	29.3		1660
0.979         486         7.99         18.3         18.0         695           1.010         695         5.89         16.6         12.6         495           1.026         495         5.89         16.6         12.6         495           1.026         495         5.89         16.6         12.6         495           0.736         514         7.01         15.0         20.7         495           0.736         512         7.05         23.7         24.0         25.0           0.736         512         7.45         21.3         22.0         20.3         517           0.736         498         7.05         21.3         20.3         21.3         512           0.737         498         6.62         20.3         21.3         512         6.7           0.737         498         6.62         20.3         21.3         512         6.7	14 BM0004	0.773	512	7.78	29.0	26.7		1660
1,010   695   5.89   16.6   12.6   495     1,006   495   5.89   16.6   12.6   495     0,776   477   7.01   15.0   20.7     0,776   514   7.01   15.0   20.7     0,786   514   7.01   15.0   20.7     0,786   512   7.03   23.7   24.7     0,784   512   7.31   22.0   20.3     0,784   512   7.45   21.3   21.3     0,784   512   7.45   21.3   21.3     0,784   512   7.45   21.3   21.3     0,784   662   7.15   20.3   22.0     0,794   662   7.15   19.0   20.7     0,785   477   7.01   19.0   20.7     0,786   477   7.01   19.0   20.7     0,786   477   7.19   15.3   15.0     0,794   477   7.19   15.3   15.0     0,794   477   7.19   15.3   15.0     0,795   477   7.19   15.3   15.0     0,796   477   7.19   15.3   15.0     0,796   477   7.19   15.7   17.7     0,800   494   7.37   18.3   16.3     0,800   494   7.37   18.3   16.3     0,800   494   7.18   21.0   24.7     0,800   494   7.18   21.0   24.7     0,800   494   7.18   21.0     0,797   477   7.19   16.0   16.3     0,797   477   7.19   16.0   16.3     0,797   477   7.19   16.7     0,797   477   7.19   16.7     0,797   477   7.19   16.7     0,797   477   7.19   16.7     0,797   477   7.19   16.7     0,797   477   7.19   16.7     0,797   477   7.19   16.7     0,797   477   7.19   16.7     0,797   477   6.87   29.3     0,797   477   6.87   29.3     0,797   477   7.19   17.0     0,797   477   7.19   17.0     0,797   477   7.19   17.0     0,797   477   6.87   29.3     0,797   477   6.87   29.3     0,797   477   7.19   7.10     0,797   477   7.19   7.10     0,797   477   7.19   7.10     0,797   477   7.19   7.10     0,797   477   6.87   29.3     0,797   477   7.10   7.10     0,797   477   7.10   7.10     0,797   477   7.10   7.10     0,797   477   7.10   7.10     0,797   477   7.10   7.10     0,797   477   7.10   7.10     0,797   477   7.10   7.10     0,797   477   7.10   7.10     0,797   477   7.10   7.10     0,797   477   7.10   7.10     0,797   477   7.10   7.10     0,797   477   7.10   7.10     0,797   477   7.10     0,797   477   7.10     0,797   477   771     0,797   477	14 BM 0005	0.979	486	7.99	18.3	18.0	495	1620
1,006         495         5.89         16.6         12.6         495           0,774         477         7,01         15.0         20.7         495           0,786         514         7,01         15.0         20.7         40.0         20.7           0,786         514         7,01         20.3         18.0         20.7         24.0         20.7           0,785         512         7,05         24.0         25.0         23.7         24.7         24.0         25.0         24.0         25.0         24.0         25.0         20.3         24.0         25.0         20.3         24.7         24.0         25.0         20.3         21.3         495         20.7         20.3         21.3         495         20.7         20.3         21.3         21.3         495         20.7         20.3         20.3         21.3         495         20.7         20.3         21.3         21.3         495         20.7         20.3         21.3         495         20.7         20.3         21.3         495         20.7         20.3         20.7         20.3         21.3         21.3         21.3         21.3         21.3         21.3         21.3         21.3 <t< td=""><td>14BM0006</td><td>1.010</td><td>495</td><td>5.89</td><td>16.6</td><td>12.6</td><td>495</td><td>1650</td></t<>	14BM0006	1.010	495	5.89	16.6	12.6	495	1650
0.774         477         7,01         15.0         20.7           0.785         477         7,01         15.0         20.7           0.786         512         7.01         15.0         20.7           0.786         512         7.03         18.0         20.3         512           0.786         512         7.03         24.0         20.3         512         24.0         20.3         512         24.0         20.3         512         24.0         20.3         512         24.0         20.3         512         24.0         20.3         512         24.7         22.0         20.3         512         24.7         24.0         20.3         517         24.7         22.0         20.3         21.3         22.1         22.1 <t< td=""><td>14BM0007</td><td>1.006</td><td>495</td><td>5.89</td><td>16.6</td><td>12.6</td><td>495</td><td>1650</td></t<>	14BM0007	1.006	495	5.89	16.6	12.6	495	1650
0.785         477         7.01         15.0         20.7           0.786         514         7.01         20.3         18.0           0.786         512         7.05         23.0         512           0.784         512         7.05         24.0         25.0         512           0.784         512         7.45         22.0         20.3         512	14 BM0008	0.774	477	7.01	15.0	20.7		1550
0.776         \$14         7.01         20.3         18.0           0.785         486         7.05         23.7         24.7           0.784         \$12         7.05         23.7         24.7           0.783         \$12         7.15         20.3         21.3         512           0.783         \$17         7.73         20.3         22.0         517           0.784         494         6.62         20.3         21.7         495           0.774         494         6.62         20.3         21.7         495           0.785         477         7.01         19.0         20.7         20.7           0.786         477         7.01         19.0         20.7         20.7           0.786         477         7.01         19.0         20.7         20.7           0.786         477         7.01         19.0         20.7         20.7           0.786         477         7.19         15.3         15.0         20.7           0.796         477         7.19         15.3         21.3         21.3           0.796         477         7.19         15.7         17.7           0	14BM0009	0.785	477	7.01	15.0	20.7		1550
0.760         512         7.05         23.7         24.7           0.785         512         7.05         23.7         24.7           0.784         512         7.31         22.0         20.3         512           0.790         517         7.45         21.3         21.3         517           0.784         652         18.3         22.0         517           0.774         494         6.62         20.3         21.7           0.774         494         6.62         20.3         21.7           0.785         477         7.01         19.0         20.7           0.786         477         7.01         19.0         20.7           0.786         477         7.01         19.0         20.7           0.786         477         7.10         19.0         20.7           0.786         477         7.10         19.0         20.7           0.796         477         7.13         21.3         21.3           0.796         477         7.19         16.0         16.3           0.797         477         7.37         15.7         17.7           0.800         504         6.8	14BM0010	0.776	514	7.01	20.3	18.0		1550
0.785         486         7.05         24.0         25.0           0.784         512         7.31         22.0         20.3         512           0.784         512         7.45         21.3         20.3         512         517           0.783         517         7.73         20.3         22.0         517         652         517         652         517         652         517         652         517         657         677         677         677         677         677         701         19.0         20.7         677         677         677         677         701         19.0         20.7         677         677         677         701         19.0         20.7         707         677         701         19.0         20.7         707         10.0         10.0         20.7         707         10.0         10.0         20.7         70.7         10.0         10.0         20.7         <	14BM0011	0.780	512	7.05	23.7	24.7		1550
0.784         512         7.31         22.0         20.3         512           0.790         512         7.45         21.3         21.3         512           0.794         494         6.62         20.3         21.3         495           0.774         494         6.62         20.3         21.7         495           0.774         497         6.62         13.3         495         517           0.785         477         7.01         19.0         20.7         20.7           0.786         477         7.01         19.0         20.7         20.7           0.793         506         7.18         22.7         23.7         20.7           0.794         512         7.54         24.3         25.0         20.7           0.795         512         7.54         24.3         25.0         20.7           0.796         477         6.87         15.7         17.7         12.3           0.796         477         7.64         17.7         12.3         12.3           0.797         486         6.87         15.7         17.7           0.800         504         7.18         21.7	14BM0012	0.785	486	7.05	24.0	25.0		1550
0.790         \$12         7.45         21.3         21.3         512           0.783         \$17         7.73         20.3         22.0         517           0.794         494         6.62         20.3         22.0         517           0.782         494         6.62         20.3         21.7         495           0.785         477         6.52         19.0         20.7         22.7         22.7           0.786         477         7.01         19.0         20.7         20.7         20.7           0.796         477         7.01         19.0         20.7         20.7         20.7           0.796         477         7.19         15.3         15.0         20.7         20.7           0.796         477         7.18         21.3         22.0         23.0         23.0         20.7           0.796         477         7.37         15.7         12.3         16.3         20.7         20.7         20.7         20.7         20.7         20.7         20.7         20.7         20.7         20.7         20.7         20.7         20.7         20.7         20.7         20.7         20.7         20.7         20.7 <td>14BM0013</td> <td>0.784</td> <td>512</td> <td>7.31</td> <td>22.0</td> <td>20.3</td> <td>512</td> <td>1660</td>	14BM0013	0.784	512	7.31	22.0	20.3	512	1660
0.783         517         7.73         20.3         22.0         517           0.774         498         8.68         18.3         13.3         495           0.774         494         7.72         19.7         22.7         6.7           0.785         477         7.01         19.0         20.7         7.7           0.786         477         7.01         19.0         20.7         7.7           0.786         477         7.19         15.3         15.0         7.7           0.786         477         7.19         15.3         15.0         7.7         7.19         15.3         15.0         7.7         7.19         15.3         15.0         7.7         7.11         15.0         7.7         7.11         15.3         15.0         7.7         7.11         15.0         7.7         7.13         15.3         15.0         7.7         7.13         15.3         15.0         7.1 <td>14BM0014</td> <td>0.790</td> <td>512</td> <td>7.45</td> <td>21.3</td> <td>21.3</td> <td>512</td> <td>1660</td>	14BM0014	0.790	512	7.45	21.3	21.3	512	1660
0.994 498 8.68 18.3 13.3 495 0.774 494 6.62 20.3 21.7 0.782 477 6.52 13.3 16.7 0.785 477 7.01 19.0 20.7 0.786 477 7.01 19.0 20.7 0.793 506 71.8 22.7 22.3 0.794 512 7.54 24.3 25.0 0.796 477 6.87 16.0 16.3 0.796 477 7.09 17.0 16.3 0.796 477 7.09 17.0 16.3 0.797 477 7.37 18.3 16.3 0.798 477 7.37 18.3 16.3 0.799 477 7.37 18.3 16.3 0.799 477 7.49 17.0 16.3 0.790 6.87 12.7 17.7 0.790 6.87 12.7 17.7 0.790 6.87 12.7 17.7 0.790 6.87 12.7 12.3 0.790 6.87 12.7 17.7 0.790 6.87 12.7 17.7 0.790 6.87 12.7 12.3 0.790 6.87 12.8 21.0 24.7 0.790 6.87 12.3 13.3 0.790 6.87 12.9 16.0 16.3 0.791 52.4 6.87 16.0 16.3 0.792 477 7.19 16.0 16.3 0.794 477 7.19 16.0 16.3 0.795 6.87 17.19 16.0 16.3 0.794 477 7.19 16.0 16.3 0.795 6.87 17.19 17.7 0.797 477 6.87 29.7 29.3 0.798 514 7.68 17.0 11.0 514	14BM0015	0.783	517	7.73	20.3	22.0	517	1660
0.774         494         6.62         20.3         21.7           0.782         494         7.72         19.7         22.7           0.785         477         7.01         19.0         20.7           0.786         477         7.01         19.0         20.7           0.791         477         7.01         19.0         20.7           0.793         506         7.18         22.7         23.7           0.794         512         7.54         24.3         25.0           0.796         477         7.18         22.7         23.7           0.796         477         6.87         12.3         21.3           0.796         477         6.87         12.3         21.3           0.796         477         7.61         17.0         16.3           0.797         477         7.37         18.7         17.7           0.800         494         7.37         18.3         16.3           0.800         494         7.18         21.0         24.7           0.800         494         7.18         21.0         24.7           0.794         477         7.19         16.0	14BM0016	0.994	498	8.68	18.3	13.3	495	1620
0.782         694         7.72         19.7         22.7           0.774         477         6.52         13.3         16.7           0.785         477         7.01         19.0         20.7           0.786         477         7.01         19.0         20.7           0.791         477         7.19         15.3         15.0           0.792         507         7.18         22.7         23.7           0.796         477         7.19         16.0         16.3           0.796         477         6.87         21.3         21.3           0.796         477         6.87         16.0         16.3           0.796         477         6.87         16.0         16.3           0.796         477         7.09         17.0         15.3           0.797         477         7.37         18.3         16.3           0.792         477         7.37         18.3         16.3           0.802         486         6.87         12.3         13.3           0.803         494         7.37         18.3         16.3           0.804         477         7.37         18.3	14BM0017	0.774	494	6.62	20.3	21.7		1550
0.774       477       6.52       13.3       16.7         0.785       477       7.01       19.0       20.7         0.786       477       7.19       15.3       15.0         0.793       506       7.18       22.7       23.7         0.784       512       7.45       24.3       25.0         0.786       577       7.15       21.3       21.3         0.796       577       7.15       21.3       21.3         0.796       477       6.87       16.0       16.3         0.796       477       6.87       16.0       16.3         0.797       477       7.37       15.7       17.7         0.800       504       6.87       15.7       17.7         0.801       494       7.37       18.3       16.3         0.802       494       7.37       18.3       16.3         0.793       477       7.37       18.3       16.3         0.794       477       7.37       18.3       13.3         0.794       477       7.19       16.0       16.0         0.794       477       7.19       16.0       16.3	14BM0018	0.782	167	7.72	19.7	22.7		1550
0.785     477     7.01     19.0     20.7       0.786     477     7.19     15.3     15.0       0.793     506     7.18     22.7     23.7       0.784     512     7.54     24.3     25.0       0.786     477     7.15     21.3     21.3       0.796     477     6.87     16.0     16.3       0.796     477     6.87     12.7     12.3       0.792     477     7.37     18.7     17.7       0.792     477     7.37     18.3     16.3       0.793     477     7.37     18.3     16.3       0.794     477     7.37     18.3     16.3       0.794     477     7.37     16.0     14.0       0.794     477     7.37     16.0     14.0       0.794     477     7.19     16.7     17.7       0.794     477     7.37     16.0     16.3       0.794     477     7.19     16.7     17.0       0.794     477     7.19     16.7     17.0       0.794     477     7.19     16.0     16.3       0.794     477     7.44     21.7     29.3       0.794     477 <t< td=""><td>14BM0019</td><td>0.774</td><td>477</td><td>6.52</td><td>13.3</td><td>16.7</td><td></td><td>1660</td></t<>	14BM0019	0.774	477	6.52	13.3	16.7		1660
0.736     477     7.01     19.0     20.7       0.793     506     7.18     22.7     23.7       0.734     512     7.54     24.3     25.0       0.736     507     7.15     21.3     21.3       0.736     477     7.15     21.3     21.3       0.796     477     6.87     16.3     25.0       0.756     486     6.85     25.0     25.0       0.775     486     6.85     25.0     25.0       0.776     477     7.37     15.7     17.7       0.792     477     7.37     15.7     17.7       0.789     486     6.87     12.3     18.3       0.789     486     7.37     16.0     14.0       0.794     477     7.37     16.0     14.0       0.794     477     7.19     16.0     16.3       0.794     477     7.19     16.0     16.3       0.794     477     7.19     16.0     16.3       0.794     477     7.19     16.0     16.3       0.794     477     7.19     16.0     16.3       0.794     477     7.44     21.7     29.3       0.794     477 <t< td=""><td>14 BM0020</td><td>0.785</td><td>477</td><td>7.01</td><td>19.0</td><td>20.7</td><td></td><td>1550</td></t<>	14 BM0020	0.785	477	7.01	19.0	20.7		1550
0.791     477     7.19     15.3     15.0       0.793     506     7.18     22.7     23.7       0.784     512     7.54     24.3     25.0       0.798     512     7.15     21.3     21.3       0.796     477     6.87     16.0     16.3       0.754     486     6.87     12.7     12.3       0.798     477     7.61     17.0     16.3       0.792     477     7.37     15.7     17.7       0.792     477     7.37     18.3     16.3       0.793     486     6.87     12.7     17.3       0.794     477     7.37     18.3     16.3       0.794     477     7.37     16.0     14.0       0.794     477     7.19     16.0     14.0       0.794     477     7.19     16.0     16.3       0.794     477     7.19     16.0     16.3       0.794     477     7.19     16.0     16.3       0.794     477     7.19     16.0     16.3       0.794     477     7.19     16.0     16.3       0.794     477     7.44     21.7     29.3       0.794     477 <t< td=""><td>14 BM 0021</td><td>0.786</td><td>477</td><td>7.01</td><td>19.0</td><td>20.7</td><td></td><td>1550</td></t<>	14 BM 0021	0.786	477	7.01	19.0	20.7		1550
0.793     506     7.18     22.7     23.7       0.780     512     7.54     24.3     25.0       0.780     507     7.15     21.3     25.0       0.796     477     6.87     16.0     16.3       0.754     486     6.87     12.7     12.3       0.775     512     7.61     17.0     16.3       0.792     477     7.37     15.7     17.7       0.792     477     7.37     18.3     16.3       0.792     477     7.37     18.3     16.3       0.793     504     7.37     18.3     16.3       0.794     477     7.37     16.0     14.0       0.794     477     7.19     16.0     14.0       0.794     477     7.19     16.0     16.3       0.794     477     7.19     16.0     16.3       0.794     477     7.19     16.0     16.3       0.794     477     7.19     16.0     16.3       0.797     477     7.44     21.7     29.3       0.797     477     7.44     21.7     32.0       0.784     477     7.44     21.7     32.0       0.784     514 <t< td=""><td>14BM0022</td><td>0.791</td><td>117</td><td>7.19</td><td>15.3</td><td>15.0</td><td></td><td>1660</td></t<>	14BM0022	0.791	117	7.19	15.3	15.0		1660
0.784     512     7.54     24.3     25.0       0.786     577     6.87     16.0     16.3       0.754     486     6.87     12.7     12.3       0.754     486     6.85     25.0     25.0       0.775     512     7.61     17.0     16.3       0.792     477     7.37     15.7     17.7       0.792     477     7.37     15.7     17.7       0.801     494     7.37     18.3     16.3       0.802     504     6.87     12.7     17.7       0.789     486     6.87     12.7     17.3       0.794     477     7.18     21.0     24.7       0.794     477     7.19     16.0     14.0       0.794     477     7.19     16.0     16.0       0.794     477     7.19     16.0     16.3       0.791     524     6.87     16.0     16.3       0.791     477     7.19     16.0     16.3       0.797     477     7.44     21.7     29.3       0.797     477     7.44     21.7     32.0       0.865     514     7.68     17.0     11.0       0.877     514 <t< td=""><td>14 BM 0023</td><td>0.793</td><td>206</td><td>7.18</td><td>7.22</td><td>23.7</td><td></td><td>1660</td></t<>	14 BM 0023	0.793	206	7.18	7.22	23.7		1660
0.780     507     7.15     21.3     21.3       0.784     512     6.87     16.0     16.3       0.795     477     6.87     12.7     12.3       0.795     477     6.85     25.0     25.0       0.796     477     7.37     15.7     17.7       0.792     477     7.37     15.7     17.7       0.801     494     7.37     18.3     16.3       0.802     504     6.87     12.7     17.7       0.789     486     6.87     12.1     24.7       0.794     477     7.18     21.0     24.7       0.794     477     7.19     16.0     14.0       0.794     477     7.19     16.0     14.0       0.794     477     7.19     16.0     16.0       0.794     477     7.19     16.0     16.3       0.791     524     6.87     16.0     16.3       0.791     477     7.44     21.7     17.0       0.797     477     7.44     21.7     29.3       0.797     477     7.44     21.7     29.3       0.784     477     7.44     21.7     32.0       0.784     514 <t< td=""><td>14 BM 0024</td><td>0.784</td><td>512</td><td>7.54</td><td>24.3</td><td>25.0</td><td></td><td>1550</td></t<>	14 BM 0024	0.784	512	7.54	24.3	25.0		1550
0.798     512     6.87     16.0     16.3       0.796     477     6.87     12.7     12.3       0.754     486     6.85     25.0     25.0       0.700     504     7.41     17.0     16.3       0.792     477     7.09     17.0     15.3       0.792     477     7.37     18.3     16.3       0.802     494     7.37     18.3     16.3       0.802     494     7.37     18.3     16.3       0.800     494     7.37     18.3     16.3       0.794     486     6.87     12.3     13.3       0.794     477     7.18     21.0     24.7       0.794     477     7.19     16.0     14.0       0.794     477     7.19     16.0     16.3       0.794     477     7.19     16.0     16.3       0.791     524     6.87     16.0     16.3       0.797     477     7.44     21.7     17.0       0.784     477     7.44     21.7     29.3       0.797     477     7.44     21.7     32.0       0.784     477     7.44     21.7     32.0       0.784     477 <t< td=""><td>14 BM 0026</td><td>0.780</td><td>507</td><td>7.15</td><td>21.3</td><td>21.3</td><td></td><td>1660</td></t<>	14 BM 0026	0.780	507	7.15	21.3	21.3		1660
0.796     477     6.87     12.3       0.754     486     6.85     25.0     25.0       0.800     504     7.37     15.7     17.7       0.792     477     7.37     15.7     17.7       0.802     477     7.37     18.3     16.3       0.802     494     7.37     18.3     16.3       0.802     494     7.37     18.3     16.3       0.789     486     6.87     12.3     13.3       0.794     477     7.18     21.0     24.7       0.794     477     7.18     21.0     24.7       0.794     477     7.19     16.0     14.0       0.794     477     7.19     16.0     16.3       0.791     524     6.87     16.0     16.3       0.791     524     6.87     16.0     16.3       0.797     477     7.44     21.7     32.0       0.784     477     7.44     21.7     32.0       0.805     514     7.68     17.0     11.0       0.807     514     7.68     17.0     11.0       0.797     514     7.68     17.0     11.0       0.807     514     7.68 <t< td=""><td>14 BM 0027</td><td>0.798</td><td>512</td><td>6.87</td><td>16.0</td><td>16.3</td><td></td><td>1660</td></t<>	14 BM 0027	0.798	512	6.87	16.0	16.3		1660
0.754         486         6.85         25.0         25.0           0.775         512         7.61         17.0         16.3           0.800         504         7.37         15.7         17.7           0.792         477         7.39         17.0         15.3           0.801         494         7.37         18.3         16.3           0.789         486         6.87         12.7         12.3           0.794         477         7.19         16.0         14.0           0.794         477         7.19         16.0         14.0           0.794         477         7.19         16.0         16.3           0.794         477         7.19         16.0         16.3           0.794         477         7.19         16.0         16.3           0.793         524         6.87         16.0         16.3           0.791         477         7.19         16.0         16.3           0.797         477         7.44         21.7         29.3           0.784         477         7.44         21.7         29.3           0.785         514         7.68         17.0	14 BM 0028	0.796	417	6.87	12.7	12.3		1660
0.775     512     7.61     17.0     16.3       0.800     504     7.37     15.7     17.7       0.792     477     7.09     17.0     15.7     17.7       0.801     494     7.37     18.3     16.3       0.789     486     6.87     12.7     12.3       0.794     477     7.18     21.0     24.7       0.794     477     7.37     16.0     14.0       0.794     477     7.19     16.0     14.0       0.793     524     6.87     16.0     16.3       0.791     524     6.87     16.0     16.3       0.797     477     7.19     17.7     17.0       0.794     477     7.19     16.0     16.3       0.793     524     6.87     16.0     16.3       0.797     477     7.44     21.7     29.3       0.784     477     7.44     21.7     32.0       0.865     514     7.68     17.0     11.0     514       0.877     514     7.68     17.0     11.0     514	14BM0029	0.754	486	6.85	25.0	25.0		1660
0.800         504         7.37         15.7         17.7           0.792         477         7.09         17.0         15.3           0.801         494         7.37         18.3         16.3           0.802         504         6.87         12.7         12.3           0.800         494         7.18         21.0         24.7           0.785         486         6.87         12.3         13.3           0.794         477         7.19         16.0         14.0           0.794         477         7.19         16.7         17.7           0.793         524         6.87         16.0         16.3           0.791         524         6.87         16.0         16.3           0.797         477         7.19         17.0         17.0           0.797         477         7.44         21.7         29.3           0.784         477         7.44         21.7         32.0           0.800         504         7.19         17.0         11.0         514           0.784         477         7.44         21.7         32.0         514           0.807         514         7.	14BM0030	0.775	512	7.61	17.0	16.3		1660
0.798     477     7.09     17.0     15.3       0.792     477     7.37     15.7     17.7       0.801     494     7.37     18.3     16.3       0.802     504     6.87     12.7     12.3       0.789     486     6.87     12.3     13.3       0.794     477     7.39     16.0     14.0       0.793     524     6.87     16.0     16.3       0.791     524     6.87     16.0     16.3       0.797     477     7.19     17.7     17.0       0.797     477     7.44     21.7     29.3       0.784     477     7.44     21.7     32.0       0.797     477     7.44     21.7     32.0       0.800     5.14     7.68     20.0     10.0     514       0.875     514     7.68     17.0     11.0     514	14 BM 0031	0.800	204	7.37	15.7	17.7		1660
0.792 477 7.37 15.7 17.7 0.792 0.792 477 7.37 15.3 16.3 16.3 0.802 504 6.87 12.7 12.3 15.3 16.3 0.794 486 6.87 12.3 12.3 13.3 15.5 17.9 16.0 14.0 0.794 477 7.19 16.0 14.0 17.7 0.793 524 6.87 16.0 16.0 16.3 0.791 524 6.87 16.0 16.3 16.3 0.797 477 6.87 29.7 29.3 0.797 477 7.44 21.7 32.0 514 0.865 514 7.68 7.70 17.0 514	14 BM 0032	0.798	417	7.09	17.0	15.3		1660
0.801         494         7.37         18.3         16.3           0.802         504         6.87         12.7         12.3           0.800         494         7.18         21.0         24.7           0.789         486         6.87         12.3         13.3           0.794         477         7.19         16.0         14.0           0.791         524         6.87         16.0         16.3           0.791         524         6.87         16.0         16.3           0.797         477         6.87         29.7         17.0           0.784         477         7.44         21.7         32.0           0.865         514         7.68         20.0         10.0         514           0.877         514         7.68         17.0         11.0         514	14BM0033	0.792	477	7.37	15.7	17.7		1660
0.802         504         6.87         12.7         12.3           0.800         494         7.18         21.0         24.7           0.789         486         6.87         12.3         13.3           0.794         477         7.19         16.0         14.0           0.793         524         6.87         16.0         16.3           0.791         524         6.87         16.0         16.3           0.800         504         7.19         17.7         17.0           0.797         477         7.44         21.7         29.3           0.784         477         7.44         21.7         32.0           0.865         514         7.68         17.0         514	14 BM 0034	0.801	494	7.37	18.3	16.3		1660
0.800         494         7.18         21.0         24.7           0.789         486         6.87         12.3         13.3           0.794         477         7.19         16.0         14.0           0.794         477         7.19         16.7         17.7           0.791         524         6.87         16.0         16.3           0.800         504         7.19         17.7         17.0           0.797         477         6.87         29.7         29.3           0.784         477         7.44         21.7         32.0           0.865         514         7.68         17.0         11.0         514	14BM0035	0.802	<b>20</b> 5	6.87	12.7	12.3		1660
0.789         486         6.87         12.3         13.3           0.796         486         7.37         16.0         14.0           0.794         477         7.19         16.7         17.7           0.793         524         6.87         16.0         16.3           0.791         524         6.87         16.0         16.3           0.800         504         7.19         17.7         17.0           0.797         477         6.87         29.7         29.3           0.784         477         7.44         21.7         32.0           0.865         514         7.68         17.0         11.0         514           0.877         514         7.68         17.0         11.0         514	14BM0036	0.800	161	7.18	21.0	24.7		1660
0.796 486 7.37 16.0 14.0 0.794 477 7.19 16.7 17.7 0.793 524 6.87 16.0 16.3 0.791 524 6.87 16.0 16.3 0.800 504 7.19 17.7 17.0 0.797 477 6.87 29.7 29.3 0.784 477 7.44 21.7 32.0 0.855 514 7.68 20.0 10.0 514	14 BM 0037	0.789	486	6.87	12.3	13.3		1660
0.794     477     7.19     16.7     17.7       0.793     524     6.87     16.0     16.3       0.791     524     6.87     16.0     16.3       0.800     504     7.19     17.7     17.0       0.797     477     6.87     29.7     29.3       0.744     477     7.44     21.7     32.0       0.855     514     7.68     20.0     11.0     514       0.877     514     7.68     17.0     11.0     514	14 BM 0038	0.796	486	7.37	16.0	14.0		1660
0.793     524     6.87     16.0     16.3       0.791     524     6.87     16.0     16.3       0.800     504     7.19     17.7     17.0       0.797     477     6.87     29.7     29.3       0.784     477     7.44     21.7     32.0       0.855     514     7.68     20.0     11.0     514       0.877     514     7.68     17.0     11.0     514	14BM0039	0.794	<i>LL</i> +	7.19	16.7	17.7		1660
0.791     524     6.87     16.0     16.3       0.800     504     7.19     17.7     17.0       0.797     477     6.87     29.7     29.3       0.784     477     7.44     21.7     32.0       0.855     514     7.68     20.0     11.0     514       0.877     514     7.68     17.0     11.0     514	14BM0040	0.793	524	6.87	16.0	16.3		1660
0.800     504     7.19     17.7     17.0       0.797     477     6.87     29.7     29.3       0.784     477     7.44     21.7     32.0       0.865     514     7.68     20.0     10.0     514       0.877     514     7.68     17.0     11.0     514	14BM0041	0.791	524	6.87	16.0	16.3		1660
0.797     477     6.87     29.7     29.3       0.784     477     7.44     21.7     32.0       0.865     514     7.68     20.0     10.0     514       0.877     514     7.68     17.0     11.0     514	14 BM0042	0.800	204	7.19	17.71	17.0		1550
0.784     477     7.44     21.7     32.0       0.865     514     7.68     20.0     10.0     514       0.877     514     7.68     17.0     11.0     514	14 BM 0043	0.797	417	6.87	7.62	29.3		1550
0.865 514 7.68 20.0 10.0 514 0.877 514 7.68 17.0 11.0 514	14 BM0044	0.784	411	7.44	21.7	32.0		1660
0.877 514 7.68 17.0 11.0 514	14 BM0045	0.865	514	7.68	20.0	10.0	514	1650
	14 BM0046	0.877	\$14	7 68	17.0	=	717	1460

PAGE 2 OF 2

CSTA-ARL/MD JOINT EPFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API BS41
DATABASE MODULE 3: MATERIALS PROPERTIES

ARL/MD ID	PLATE TH	HARD	DI [NUM]	LT [FT-LB]	T. [FT-LB]	HARD [BRN]	TEMP (DEG F)
14 BM 0048	0.791	\$10	7.19	7.22	24.3	, , , , , ,	1660
14BM0049	0.779	512	7.30	23.0	24.3		1550
14BM0050	0.780	161	7.34	22.3	24.7		1550
14BM0051	0.996	206	6.31				1650
14BM0052	0.780	512	7.30	20.3	22.7		1660
14BM0053	0.781	512	7.30	20.3	72.7		1660
14BM0054	0.80	512	7.55	18.7	24.0		1660
14BM0055	0.784	522	7.51	17.7	25.0		1660
14BM0056	0.784	522	7.51	17.7	25.0		1660
14BM0057	1.017	514	6.19	15.0	16.0	514	1650
14BM0058	0.777	477	6.28	24.7	28.7		1550
14BM0059	0.976	522	12.57	25.7	24.0	514	1620
14BM0060	0.778	512	5.23	28.0	29.3		1660
14BM0061	0.762	477	5.23	20.0	20.0		1660
14BM0062	0.796	486	7.51	26.0	29.0		1660
14BM0063	0.796	486	7.51	26.0	29.0		1660
14BM0064	1.012	111	6.10	21.7	22.3		1550
14BM0065	0.891	502	7.68	13.3	16.0		1660
14 BM0066	1.003	534	12.30	18.7	19.7	534	1550
14BM0067	0.884	504	12.30	14.7	16.0	204	1550
14BM0068	0.778	514	5.98	17.0	16.5	495	1660
14BM0069	0.775	512	5.60	22.3	26.7		1660
14BM0070	0.882	512	99.9	17.3	19.0		1660
14BM0071	0.887	204	7.76	13.3	16.0		1550
14BM0072	1.023	534	7.76	13.0	18.0		1550
14BM0073	0.780	512	5.60	22.3	26.7		1660
14BM0074	0.886	512	89.9	17.3	19.0		1660
14BM0075	0.886	512	89.9	17.3	19.0		1660
14 BM0076	0.784	484	5.52	18.3	19.0		1660
14BM0077	1.000	495	5.98	18.0	17.0	495	1650
14BM0078	0.882	504	12.30	14.7	16.0	204	1550
14BM0079	1.002	534	12.30	18.7	19.7	534	1550
14BM0080	1.006	514	10.96	20.0	20.0	514	1600
14 BM 00\$1	0.786	<b>†6†</b>	9.60	27.0	30.0		1660
000001011			•				

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API BS41

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	CSTA-ARL	MD JOINT E	CSTA – ARL/MD JOINT BFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS	THE IMPROV OR PLATE MA	EMENT OF T ATERIALS	HE		A = ACC D = DEV	= ACCEPTANCE = DEVELOPMENT				
•	PROJECTIL DATABASE	PROJECTILE: 14.5 MM API BS41 DATABASE MODULE 4: BALLIS	PROJECTILE: 14.5 MM API BS41 DATABASE MODULE 4: BALLISTIC PERFORMANC	ERFORMANG	CE			<b>₹</b>	= FIRST ARTICLE PRIMARY RETEST	an)	<b>6.</b> 2.	= PASS = PAIL	
ARL/MD ID	TEST PURPOSE [A/D/PA]	SAMPLE PRIM/RET [P/R]	FIRING RECORD	FIRING DATE	FAIL FIRING RECORD	TEST [NUM]	PROJECTILE	OBL	ACT PLATE TH [IN]	REQ VEL [FT/SEC]	ACT VEL [PT/SEC]	PASS PAIL [P/F]	VEL DIPP (PT/SEC)
14BM0001	•	ď	90001604	10/26/90		XIX	145MMAPIRS41	8	0.773	2300	2337	4	37
14 BM 0002	<	. 24	90001609	10/29/90	90001498	XIX	145MMAPIBS41	8	0.788	2338	2414	. م.	76
14 BM0003	: <b>&lt;</b>	<b>*</b>	90001610	10/26/90	90001498	SIX	145MMAPIBS41	<b>8</b>	0.793	2351	2366		21
14 BM 0004	<	<b>±</b>	90001612	10/26/90	90001497	SIX	145MMAPIBS41	8	0.773	2300	2264	ρ.,	-36
14 BM 0005	<	۵,	90001634	10/31/90		XIX	145MMAPIBS41	ଛ	0.979	2788	2899	۵,	111
14BM0006	<	<b>¤</b>	90001645	11/05/90		XIX	145MMA"1BS41	<b>R</b>	1.010	2854	2956	٠, ۱	102
14 BM 0007	<	<b>24</b> ,	90001646	11/14/90		XIX	145MMAFIBS41	2	900.	2845	2845	<b>4</b>	•
14 BM 0008	< •	<b>24</b> p	90001792	12/12/90		XIX	145MMAPIBS41	2 2	0.774	2302	2375	D., D	73
14 BM 0009	< <	£ 2	90001/93	12/11/20		VIS XIX	145MMAPIRS41	2 2	0.78	23087	77.57	L, @	) <u>a</u>
14BM0011	< <	. ۵	90001817	12/12/90		XIX	145MMAPIRS41	2 2	0.780	2318	2439	, A.	121
14 BM 0012	: <	n Ba	90001818	12/11/90		SIX	145MMAPIBS41	8	0.785	2331	2278	, 2L,	- S3
14BM0013	<	۵,	90001825	12/11/90		SIX	145MMAPIBS41	8	0.784	2328	2514	۵,	186
14BM0014	<	۵,	90001826	12/11/90		XIX	145MMAPIBS41	8	0.790	2343	2513	۵.	170
14 BM 0015	<	۵.	90001827	12/11/90		XIX	145MMAPIBS41	<b>2</b>	0.783	2326	2418	a. ;	92
14 BM 00 16	< •	<b>¤</b> •	91000008	01/31/91		XIX	145MMAPIBS41	8 8	0.994	2820	2869	ع بھ	<b>6</b>
14 BMC0017	< •	<b>.</b> , 6	91000123	02/01/91		¥10	145MMAPIBS41	3 8	6.74	2062	246	L, 2	)OI
14 BM0019	< <	. a.	91000137	02/01/91		XIX	145MMAPIBS41	3 8	0.774	2302	2421	. a.	)
14 BM 0020	: <	· 64	91000181	02/04/91		XIX	145MMAPIBS41	8	0.785	2331	23%	۵.	\$9
14 BM 0021	<	æ	91000182	02/04/91		SIX	145MMAPIBS41	8	0.786	2333	2335	۵.	7
14 BM 0022	<	<b>6.</b>	9100016	02/01/91		SIX	145MMAPIBS41	2	0.791	2346	2422	ا بھ	92
14 BM 0023	< •	<b>D.</b> , 6	91000196	02/01/91		XIX	145MMAPIBS41	8 8	0.793	1321	2402	ء يە	3 23
14 BM 0024	< <	L, A	91000197	02/01/91		XIX	145MMAPIRS41	3 8	0 780	2318	243	L, A.	3 5
14 BM 0027	: <	, <b>c.</b> ,	91000294	03/04/91		SIX	145MMAPIBS41	8	0.798	2364	2339	. œ.	-25
14 BM 0028	<	۵,	91000296	03/04/91		XIX	145MMAPIBS41	8	0.796	2359	2386	۵.	27
14 BM 0029	< ∙	<b>6.</b> (	91000406	03/11/91		XIX	145MMAPIBS41	2 3	0.754	2686	2807	<b>a.</b> 6	121
14 BM 0030	< <	۵.	91000561	03/12/91		XIX	145M MAPIBS41	3 8	6.7.5	2368	2513	۰, ۵	• 9
14 BM0032	<	, A,	91000678	04/22/91		XIX	145MMAPIBS41	8	0.798	2364	2419	, <b>a</b> ,	S 2
14 BM 0033	<	۵.	91000679	04/18/91		SIX	145MMAPIBS41	8	0.792	2348	2532	<b>6.</b>	184
14 BM 0034	< ⋅	<b>c.</b> 1	91000680	04/19/91		XIX	145MMAPIBS41	ଛ :	0.801	2372	2405	<b>a.</b> (	33
14 BM 0035	< <	<b>.</b> , o	91000683	04/22/91		X IS	145MMAPIBS41	3 2	0.502	2369	2 2 2	<b>.</b> , 2	79
14 BM 0037	< <	. A.	91000685	05/01/91		XIX	145MMAPIBS41	3 3	0.789	34.	23.80	. e.	8 8
14 BM 0038	<	<b>.</b>	91000690	04/19/91		SIX	145MMAPIBS41	8	0.796	2359	2336	<b>a</b> .	-23
14 BM 0039	<	۵.	91000742	05/15/91		XIX	145MMAPIBS41	8	0.794	2353	2528	۵.	175
14 BM 0040	<	<b></b>	91000746	05/15/91	91000294	SIX	145MMAPIBS41	8	0.793	2351	2477	e.	126
14 BM 0041	< ⋅	<b>e</b> (	91000747	05/15/91	91000294	XIX	145MMAPIBS41	<b>R</b> :	0.791	2346	2401	<b>-</b> 1	<b>S</b>
14 BM 0042	< ∙	ا بد	9100016	16/91/50		XIX	I45MMAPIBS41	R :	0.800	2369	2501	<b>A.</b> 1	132
14 BM 0043	< •	<b>D.</b> , 6	91000777	16/91/50		X	145MMAPIBS41	2 2	0.797	2361	2446	<b>L</b> 4	2 5
14 BM 0044	< \$	<b>.</b> ,	91000438	05/16/91		K 12	145MMAPIBS41	3 8	**/ O	8757	22.55	L, A	3 5
14 B MOOA6	<b>S S</b>		01000860	06/04/91		XIX	145WWA PIRKA1	3 8	0.877	25.57	35.55	. 6	3 2
14 BM 0047	: <	۵.	91000893	06/04/91		XIX	145MMAPIBS41	2 2	0.794	2353	2456	. s.	103
		ı				; ; ;						ı	

	CSTA-ARL BALLISTIC PROJECTIL	CSTA-ARL/MD JOINT EFFORT BALLISTIC PERFORMANCE OF PROJECTILE: 14.5 MM API BS41	CSTA – ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API 8541	THE IMPROV OR PLATE M.	OVEMENT OF T MATERIALS	THE		A = ACC D = DEV PA = PII	= ACCEPTANCE = DEVELOPMENT N = PIRST ARTICLE	, <b>2</b> 2			
	DATABASE	MODULE 4:	DATABASE MODULE 4: BALLISTIC PERFORM		ANCE			P = PRIMARY R = RETEST	MARY EST	ı	<u> </u>	P = PASS F = FAIL	
AR!/MD ID	TEST PURPOSE	SAMPLE PRIM/RET [P/R]	FIRING	PIRING DATE	FAIL FIRING RECORD	TEST	PROJECTILE	OBL	ACT PLATE TH	REQ VEL	ACT VEL	PASS PAIL IP/FI	VEL DIPP (PT/SEC)
14 10 14 10 14 10 14 10	•		01000604	05/1/01		A L	145WMA BIDG41	92	701.0	22.46	2776		
14BM0049	< <	<b>.</b> A.	91001008	06/04/91		XIS	145MMAPIBS41	8 8	0.779	23 152	2405	<u>.</u> a.	<b>.</b>
14BM0050	<	۵.	91001011	06/04/91		XIX	145MMAPIBS41	8	0.780	2318	2358	۔	3
14BM0051	<	۵.	91001025	16/81/90		SIX	145MMAPIBS41	8	0.996	2824	2942	۵.	118
14BM0052	<	<b>4</b>	89010016	16/11/90	91000684	XIX	145MMAPIBS41	2	0.780	2318	2600	۵.	282
14 BM 0053	<	æ	91001069	06/11/91	91000684	SIX	145MMAPIBS41	2	0.781	2321	2618	4	297
14BM0054	< ∙	۽ بھ	91001070	06/04/91		XIX	145MMAPIBS41	2 2	0.804	2379	2433	، ،	<b>*</b>
14 BM 0055	< -	<b>*</b> 0	2/010016	16/11/91	9100090	XIX	145MMAPIBS41	₹ 8	<b>1</b>	23.28	25.22	• 6	72
14 BM0036	< <	K 0	91001673	06/11/91	06000016	Y IX	145MMAPIBS41	3 5	1017	22.63	1005	<b>L</b>	230
14 BM 0058	< <	, A	91001172	07/02/91		XIX	145MMAPIRS41	2 2	0.777	2310	2368		3 3
14 BM0059	: <b>&lt;</b>	, <u>a</u> ,	91001462	09/05/91		XIX	145MMAPIBS41	8 8	0.976	2781	27.28	. ه.	
14BM0060	<	۵.	91001532	16/91/60		SIX	145MMAPIBS41	8	0.778	2313	2460	۵.	147
14BM0061	PA		91001538	16/61/60		XIX	145MMAPIBS41	8	0.762	2702	ווונג	۵.	75
14 BM 0062	PA		91001617	09/30/91		SIX	145MMAPIBS41	2	0.796	2359	2435	۵.	76
14BM0063	PA.	•	91001618	09/30/91		XIX	145MMAPIBS41	2	0.796	2359	2501	<b>a.</b> 1	142
14 BM0064	< <	2. A	91001677	10/18/91		XIX	145MMAPIBS41	3 5	1.012	28.28	2915	<b>2.</b> 0	· •
14BM0066	: <	۰.	91001813	11/15/91		XIX XIX	145MMAPIBS41	8 8	1.003	7839	2767	. 2	-72
14BM0067	<	۵.	91001814	11/15/91		XIX	145MMAPIBS41	2	0.884	2574	2377	-	- 197
14BM0068	<	<u>م</u>	91001834	11/18/91		XIX	145MMAPIBS41	8	0.778	2313	2385	<u>۔</u>	22
14BM0069	< -	<b>4</b> ,	91001925	12/06/91		XIX	145MMAPIBS41	8	0.775	2305	2294	· <b>-</b>	-
14 BM 00/0	۷٠	<b>3.</b> £	91001949	16/21/21		XIX	145MMAPIBS41	2	0.882	2569	2562	<b>2.</b> (	7-
14 BM00/1	< <	<b>*</b> a	91002021	01/06/92	91001814	XIX	145WMAPIBS41	3 8	1.023	2887	202	<b>.</b> 12	14-
14BM0073	<	e e	92000011	01/09/92	91001925	XIX	14SMMAPIBS41	8	0.780	2318	2237	. 2	<b>₹</b>
14BM0074	<	<b>±</b>	92000016	01/09/92	91001949	XIX	145MMAPIBS41	2	0.886	2578	2636	-	<b>.</b>
14BM0075	<	æ	92000017	01/09/92	91001949	SIX	145MMAPIBS41	8	0.886	2578	2632	۵.	3
14BM0076	<	۵.	92000108	01/28/92		SIX	145MMAPIBS41	2	0.784	2328	2376	۵.	#
14BM0077	<	۵.	92000206	02/26/92		XIX	14SMMAPIBS41	2	1.000	2832	2836	۵.	₩
14BM0078	<	≃ -	92000209	02/19/92	91001814	SIX	14SMMAPIBS41	2	0.882	2569	2655	۵,	3
14 BM 0079	<	<b>∝</b>	92000210	02/19/92	91001813	XIX	145MMAPIBS41	2	1.002	2836	2895	۵.	89
14 BM 0080	< -	۰, ۱	92000248	02/27/92	1	XIX	145MMAPIBS41	유 :	1.006	2845	2874	۵.	<b>%</b>
14 BM 0081	<	<b>∝</b>	92000251	02/26/92	92000011	XIX	145MMAPIBS41	8	0.786	2333	2472	۵.	139
14 BM 0082	<	Ω.,	92000258	03/05/92		SIX	145MMAPIBS41	옸	1.003	2839	2828	<b>2.</b>	=-

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API BS41 DATABASE MODULE 5: CHEMICAL COMPOSITIONS

ARL/MD ID	C [WT%]	MN [WT%]	SI [WT%]	NI [WT%]	CR [WT%]	MO [WT%]	v [WT%]	B [WT%]	CU [WT%]	P [WT%]	S [WT%]	ZR [WT%]	AL [WT%]
14 BM 0001	0.3200	0.9000	0.4300	1.0500	0.5300	0.5800		; 	 	0.0150	0.0020	 	0.0210
14 BM 0002	0.3200	0.9000	0.4400	1.0100	0.5700	0.5600	0.0030		0.1300	0.0080	0.0010		0.0210
14 BM 0003	0.3200	0.9000	0.4400	1.0100	0.5700	0.5600	0.0030		0.1300	0.0080	0.0010		0.0210
14BM0004	0.3200	0.9000	0.4400	1.0100	0.5700	0.5600	0.0030		0.1300	0.0080	0.0010		0.0210
14BM0005	0.2900	0.9900	0.4300	0.5000	0.6400	0.3100		0.0016		0.0100	0.0010		0.0340
14 BM 0006	0.3000	1.5300	0.2300			0.5400		0.0007		0.0000	0.0040		
14 BM 0007	0.3000	1.5300	0.2300	0000	00330	0.5400	0000	0.000	6031	0.000	9.00		0700
14 B M 0000	0.5150		0.4200	9760	0.5500	2460	0.0020		9 5		0.0020		0.0260
14BM0010	0.3100	0.8.00	0.4200	0.9700	0.5500	0.5400	9.0020		0.1600	0.0060	0.0020		0.0260
14BM0011	0.3000	0.9000	0.4200	0.9600	0.5600	0.5600	0.0010		0.1400	0.0060	0.0010		0.0200
14BM0012	0.3000	0.9000	0.4200	0.9600	0.5600	0.5600	0.0010		0.1400	0.0060	0.0010		0.0200
14BM0013	0.3000	0.8900	0.4500	1.0700	0.5600	0.5500	0.0030		0.1600	0.0010	0.0020		0.0220
14BM0014	0.3000	0.9100	0.4500	0.9500	0.5700	0.5700	0.0040		0.1600	0.0090	0.0030		0.0250
14 15 14 (1)	0.3200	0.6900	0.4300	0.010.0	0.3600	0.5500	0.0030		0.1900	0.000	0.0010		0.0260
14 BM0016	0.3000	0.0200	0.4400	0.3800	0.6300	0.3200		0.001/		0.0030	0.0020		0.0340
14BV0018	0.2100	9019	0.4500	0000	20000	90000	0.000		0 1 200	0.00.0	900.0		0000
14 BM0019	0.2500	0.9000	0.4500	0.9400	0.5000	0.5600			0 1600	0.0100	0.0060	0.0030	0.0160
14 BM 0020	0.3100	0.8800	0.4200	0.9700	0.5500	0.5400	0.0020		0.1600	0.0060	0.0020		0.0260
14BM0021	0.3100	0.8800	0.4200	0.9700	0.5500	0.5400	0.0020		0.1600	0.0060	0.0020		0.0260
14BM0022	0.3100	0.9100	0.4300	0.9600	0.5100	0.5700	0.0020		0.1700	0.0080	0.0010		0.0270
14 BM 0023	0.2900	0.8900	0.4400	1.1100	0.5700	0.5700	0.0030		0.1000	0.0010	0.0010		0.0320
14BM0024	0.3100	0.9000	0.4400	1.0100	0.5700	0.5600	0.0030		0.1300	0.0080	0.0010		0.0210
14BM0026	0.3000	0.9200	0.4400	0.9500	0.5500	0.5500	0.0030		0.1600	0.0080	0.0020		0.0220
14 BM 0027	0.3000	0.88.0	0.4200	1.1600	0.5000	0.5500	0.0030		0.1600	0.0070	0.0030		0.0280
14 BM 0028	0.3000	9849	0.4500	1.1800	5500	0.5300	0.0030		9061	0.00.0	0.003	0	0.0260
14BM0030	0.3100	0.9300	0.4500	0.9500	0.5200	0.5900			0.1500	0.0100	0.0010	0.0030	0.0290
14BM0031	0.3100	0.9000	0.4000	0.9700	0.5500	0.5800	0.0030		0.1500	0.0070	0.0020		0.0220
14BM0032	0.3000	0.9100	0.4300	1.0500	0.5500	0.5500	0.0030		0.1000	0.0000	0.0010		0.0400
14 BM0033	0.3100	0.9000	0.4000	0.9700	0.5500	0.5800	0.0030		0.1500	0.0010	0.0020		0.0220
14 BM 0034	0.3100	0.9000	0.4000	0.9700	0.5500	0.5800	0.0030		0.1500	0.0070	0.0020		0.0220
14 BM0035	0.3000	00000	0.4200	2001.	0.5000	0.3300	0.0030			0.000	9.00		0.0250
14 BM 0037	0.3000	0.8800	0.4200	1.1600	0.5000	0.5500	0.0030		0.1600	0.000	0.0030		0.0280
14BM0038	0.3100	0.9000	0.4600	0.9700	0.5500	0.5800	0.0030		0.1500	0.0070	0.0020		0.0220
14BM0039	0.3100	0.9100	0.4300	0.9600	0.5100	0.5700	0.0020		0.1700	0.0080	0.0010		0.0270
14BM0040	0.3000	0.8800	0.4200	1.1600	0.5000	0.5500	0.0030		0.1600	0.0070	0.0030		0.0280
14BM0041	0.3000	0.8800	0.4200	1.1600	0.5000	0.5500	0.0030		0.1600	0.0010	0.0030		0.0220
14 BM 0042	0.2900	0.8800	0.4300	1.1000	0.5700	0.5800	0.0050		0.1100	0.0060	0.0020		0.0210
14BM0043	0.3100	0.8800	0.4100	0.9600	0.5400	0.5500	0.0020		0.1200	0.0060	0.0010		0.0310
14BM0044	0.3100	0.8900	0.4400	1.0300	0.5600	0.5600	0.0030	•	0.1300	0.0080	0.0020		0.0320
14 BM 0045	0.3000	0.9600	0.3800	0.6200	0.6000	0.3100		0.0013		0.0000	0.0020		
1415/40046	0.3000	0.9900	0.3800	0.0200	0.000	0.5100	0.00	0.0013	9000	0.000	0.0020		60.00
1 + 13 M c04 /	0.5100	0.8300	9.44.0	1.0300	0.3600	0.5600	0.0038		0.1300	0.000	N.W2V		0.0320

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API BS41 DATABASE MODULE 5: CHEMICAL COMPOSITIONS

ARL/MD ID	[WT%]	SB [WT%]	WT%]	WT%]	rs [WT%]	WT%]	[WT%]	[WT%]	[WT%]	
14 BM 0001								, I		
14 BM 0002	0.0030		0.0040			0.0056	0.0010	0.4000	0.0020	0.0100
4 BM 0003	0.0030		0.0040			0.0056	0.0010	0.4000	0.0020	0.0100
14 BM 0004	0.0030		0.0040			0.0056	0.0010	0.4000	0.0020	0.0100
14 BM 0005	0.0440									
14 BM 0006										
14 BM 0007										
14 BM0008			0.0040			0.0020	0.0030	0.4000	0.0010	0.0100
14 BM 0009			0.0040			0.0080	0.0020	0.4000	0.0010	0.0100
14 BM 00 10	0.0030		0.0040			0.0080	0.0020	0.4000	0.0010	0.0100
14 BM 0011	0.0030		0.0040			0.0048	0.0020	0.4000	0.0010	0.0100
14BM0012	0.0030		0.0040			0.0048	0.0020	0.4000	0.0010	0.0100
4BM0013	0.0030		0.0060							•
14BM0014	0.0040		0.0050							
14BM0015	0.0030		0.0060							
4BM0016	0.0450									
14BM0017										
14 BM0018	0.0030		0.0030							
14 BM 0019	0.0030	0.0030	0.0070	0.0140						
14 BM 0020	0.0030		0.0040			0.0080	0.0020	0.4000	0.0010	0.0100
14 BM0021	0.0030		0.0040			0.0080	0.0020	0.4000	0.0010	0.0100
14 BM 0022	0.0030		0.0050			0.0084	0.0030	0.9000	0.0010	0.0120
14 BM 0023	0.0030		0.0050			0.00\$2	0.0020	0.7000	0.0040	0.0120
14 BM0024	0.0030		0.0040				•		0.0020	0.0100
14 BM 0026	0.0040		0.0040							
14 BM 0027	0.0040		0.0050			0.0086	0.0020	0.7000	0.0010	0.0140
14 BM0028	0.0040		0.0050			0.0086	0.0020	0.7000	0.0010	0.0140
14 BM 0029	0.0030	0.0020	0.0060	0.0080	0.0030					
14 BM0030	0.0030	0.0030	0.0060	0.0140	0.0030					
14 BM0031	0.0030		0.0050			0.0076	0.0030	0.9000	0.0010	0.0110
14 BM 0032	0.0030		0.0040			0.0068	0.0020	0.9000	0.0030	0.0000
14 BM 0033	0.0030		0.0020			0.0076	0.0030	0.9000	0.0010	0.0110
14 BM0034	0.0030		0.0050			0.0076	0.0030	0.000	0.0010	0.0110
14 BM 0035	0.0040		0.0050			0.0086	0.0020	0.7000	0.0010	0.0140
14 BM0036	0.0030		0.0020			0.00\$2	0.0020	0.7000	0.0040	0.0120
14 BM0037	0.0040		0.0050			0.0086	0.0020	0.7000	0.0010	0.0140
14 BM0038	0.0030		0.0050			0.0076	0.0030	0.9000	0.0010	0.0110
14 BM0039	0.0030		0.0050			0.0084	0.0030	0.9000	0.0010	0.0120
14 BM0040	0.0040		0.0050			0.0086	0.0020	0.7000	0.0010	0.0140
14 BM0041	0.0040		0.0050			0.0086	0.0020	0.7000	0.0010	0.0140
14BM0042	0.0030		0.0050			0.0066	0.0020	0.2000	0.0020	0.0120
14 BM0043	0.0030		0.0040			0.0068	0.0010	0009.0	0.0010	0.0100
14 BM0044	0.0040		0.0060			0.0076	0.0020	0.8000	0.0020	0.0110
14 BM0045								1		
14 BM 0046										
1										

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTY; PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API BS41
DATABASE MODULE 5: CHEMICAL COMPOSITIONS

AL {WT%}	0.0270	0.0330	0.0260		0.0330	0.0330	0.0330	0.0230	0.0230		0.0240				0.0290	0.0290				0.0300	0.0370	0.0350	0.0380	0.0300	0.0300	0.0350	0.0380	0.0380	0.0230		0.0300	0.0300	0.0210	0.0350
ZR [WT%]													0.0040	0.0040				0.0030	0.0030	0.0030		0.0030	0.0020	0.0030	0.0030	0.0030	0.0020	0.0020	0.0030	0.0020	0.0030	0.0030		0.0030
S [WT%]	0.0010	0.0020	0.0020	0.0040	0.0020	0.0020	0.0030	0.0020	0.0020	0.0030	0.0010	0.0020	0.0020	0.0020	0.0010	0.0010	0.0010	0.0030	0.0030	0.0030	0.0020	0.0010	0.0020	0.0030	0.0030	0.0010	0.0020	0.0020	0.0020	0.0030	0.0030	0.0030	0.0020	0.0010
P [WT%]	0.0080	0.0080	0.0000	0.0000	0.0080	0.0080	0.0000	0.0000	0.0080	0.0100	0.0060	0.0120	0.0000	0.0000	0.0050	0.0050	0.0000	0.0120	0.0120	0.0120	0.0060	0.0070	0.0060	0.0130	0.0120	0.0070	0.0060	0900.0	0.0060	0.0100	0.0120	0.0120	0.0060	0.0070
CU [WT%]	0.1700	0.1100	0.1600		0.1100	0.1100	0.1200	0.1600	0.1600		0.0900	0.1500	0.1200	0.1200	0.1100	0.1100	0.1600	0.1900	0.1900	0.1900	0.1600	0.1200	0.1000	0.1900	0.1900	0.1200	0.1000	0.1000	0.1200		0.1900	0.1900	0.1200	0.1200
B [WT%]	 			0.0015						9100.0		0.0003							0.0005	0.0005	0.0019									0.0013	0.0005	0.0005	0.0002	
v [WT%]	0.0020	0.0030	0.0020		0.0030	0.0030	0.0040	0.0030	0.0030		0.0030		0.0050	0.0050	0.0030	0.0030	0.0030		0.0060	0.0060		0.0020		0.0060	0.0060	0.0020			0.0030	0.0040	0.0060	0.0060		0.0020
MO [WT%]	0.5700	0 5700	0.5600	0.5600	0.5706	0.5700	0.5600	0.5790	0.5700	0.5500	0.5500	0.5700	0.5300	0.5300	0.5500	0.5500	0.5500	0.5500	0.5500	0.5500	0.1900	0.5500	0.5400	0.5500	0.5500	0.5500	0.5400	0.5400	0.5400	0.5200	0.5500	0.5500	0.5400	0.5500
CR [WT%]	0.5100	0.5800	0.5400	0.0230	0.5800	0.5800	0.5600	0.5600	0.5600	0.0320	0.5000	0.5700	0.5000	0.5000	0.5500	0.5500	0.5000	0.5600	0.5600	0.5600	0.5400	0.4900	0.5500	0.5600	0.5600	0.4900	0.5500	0.5500	0.5000	0.0470	0.5600	0.5600	0.5400	0.4900
NI [WT%]	0.9600	1.1000	0.9700	0.0060	1.1000	1.1000	1.0400	0.9800	0.9800	0.0060	0.8900	1.0500	0.9100	0.9100	1.0400	1.0400	0.9400	1.0500	1.0500	1.0500	0.4200	0.9200	1.0000	1.0500	1.0500	0.9200	1.0000	1.0000	0.9000	0.0060	1.0500	1.0500	1.0100	0.9200
SI [WT%]	0.4300	0.4500	0.4500	0.3400	0.4500	0.4500	0.4500	0.4100	0.4100	0.3100	0.4000	0.4700	0.4100	0.4100	0.4300	0.4300	0.4200	0.4500	0.4500	0.4500	0.4300	0.4300	0.4200	0.4200	0.4500	0.4300	0.4200	0.4200	0.4300	0.3100	0.4500	0.4500	0.4400	0.4300
MN [WT%]	0.9100	0.8900	0.9000	1.4800	0.8900	0.8900	0.9000	0.9100	0.9100	1.4700	0.9000	0.9100	0.8500	0.8200	0.9000	0.9000	0.8900	0.9100	0.9100	0.9100	0.8200	0.8200	0.8800	0.9100	0.9100	0.8200	0.8800	0.8800	0.8100	1.4600	0.9100	0.9100	0.8700	0.8200
C [WT%]	0.3100	0 2900	0.3100	0.2900	0.2900	0.2900	0.3100	0.3100	0.3100	0.2900	0.3000	0.3200	0.2600	0.2600	0.3200	0.3200	0.2800	0.3100	0.3100	0.3100	0.3100	0.2800	0.3000	0.3100	0.3100	0.2800	0.3000	0.3000	0.2800	0.2600	0.3100	0.3100	0.3100	0.2800
ARL/MD ID	14 BM 0048	14 RM 0049	14BM0050	14BM0051	14BM0052	14BM0053	14 BM 0054	14 BM 0055	14 BM 0056	14BM0057	14BM0058	14 BM 00 59	14BM0060	14BM0061	14 BM 0062	14BM0063	14BM0064	14BM0065	14 BM 0066	14BM0067	14BM0068	14BM0069	14BM0070	14BM0071	14 BM 0072	14BM0073	14BM0074	14 BM 0075	14 BM 0076	14BM0077	14 BM0078	14 BM0079	14 BM0080	14 BM 0081

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 14.5 MM API BS41
DATABASE MODULE 5: CHEMICAL COMPOSITIONS

14BM0048 0.0030 14BM0049 0.0030 14BM0051 0.0030 14BM0052 0.0030 14BM0054 0.0030 14BM0055 0.0030 14BM0056 0.0030 14BM0059 0.0040 14BM0059 0.0040 14BM0060 0.0040 14BM0061 0.0040 14BM0062 0.0040 14BM0063 0.0040 14BM0064 0.0040 14BM0065 0.0030 14BM0066 0.0030 14BM0067 0.0030 14BM0067 0.0030 14BM0067 0.0030 14BM0069 0.0030 14BM0069 0.0030 14BM0069 0.0030	0.0020 0.0020	0.0050							
		0.0040			0.0084	0.0030	0.9000	0.0010	0.0120
		0 0000							
	-								
		0.0040							
		0.0040							
		0.0020							
		0.0020							
	-	0.0050							
	•	0.0040			0.0056	0.0020	0.9000	0.0010	0.0000
	-								
		0.0050	0.0080	0.0030					
·		0.0050	0.0080	0.0030					
		0.0050			0.0056	0.0020	1.0000	0.0050	0.0100
		0.0050			0.0056	0.0020	1.0000	0.0050	0.0100
		0.0050			0.0064	0.0020	0.4000	0.0020	0.0110
		0.0060	0.0100	0.0020					
		0.0060	0.0100	0.0020					
	0.0020	0.0060	0.0100	0.0020					
		0.0060	0.0100	0.0020					
		0.0050	0.0080	0.0030					
	_	0.0060	0.0100	0.0020					
		0.0060	0.0100	0.0020					
		0,0060	0.0100	0.0020					
	0.0020	0.0050	0.0080	0.0030					
14BM0075 0.0030		0.0020	0.0080	0.0030					
14BM0076 0.0030	0.0020	0.0060	0.0070	0.0020					
14BM0078 0.0030	0.0020	0.0060	0.0100	0.0020					
14 BM0079 0.0030	0.0020	0.0060	0.0100	0.0020					
_									
14BM00\$1 0.0630		0.0060	0.0100	0.0020					
14BM00\$2 0.0030	0.0020	0.0060	0.0080	0.0030					

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CSTA-ARL/MD JOINT BFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602
DATABASE MODULE 1: MTL ID & MIL SPEC ATTRIBUTES
DATABASE MODULE 2: PLATE PRODUCTION HISTORY

	K	SPEC	SPEC	SPEC						PRODUCER
ARL/MD ID	SPEC NO	REV	AMD	MATCL	PROD	FABR	HEAT TR	HEAT NO	LOT NO	PLATE NO
20 A M 0001	MIL-A-46100	ပ	2		1 1 1 1 1 1 1 1 1 1		· L	B\$211	1	B\$211-6B
20 A M 00002	MIIA-46100	0						R&677		R\$677-C11
20 A M 0003	MIL - A - 46100							BE678		B4678-281
20 A M 0004	MII A - 46100	. U						R7422		R7422-5RA
20 A M 0005	<b>`</b>	Ü	7					B\$216		B\$216-1AAR1
20 A M 0006	MIL-A-46100	ပ	7					B#216		B\$216-1AAR2
20 A M 0007	MIL-A-46100	Q						B7422		B7422-39A
20 A M 0008	MIL-A-46100	۵						ZT0230		ZT0230
20 A M 0009	MIL-A-46100	ပ	7					B6801		B6401-39AB
20 A M 0010	MIL-A-46100	ပ						B\$677		B\$677-1E
20 A M 0011	MIL-A-46100	ပ	7					B\$678		B&678-39A
20AM0012	MIL-A-46100	۵						B\$216		B\$216-1CBR1
20 A M 0013	MIL-A-46100	Ω						B\$216		B\$216-1CBR2
20AM0014	MIL-A-46100	۵			•			B7247		B7247-4BA
20 A M 0015	MIL-A-46100	۵						320150		320150-1
20AM0016	MIL-A-46100	۵						B8577		B&S77D
20 A M 0017	MIL-A-46100	ပ	7					B7422		B7422-5BAR1
20 A M 00 1 8	MIL-A-46100	ပ	7					B7422		B7422-5BAR2
20 A M 00 19	MIL - A - 46100	۱						B\$678		B8678-39E
20AM0020	MIL-A-46100	ပ	7					B\$211		B\$211~6A
20AM0021	MIL - A - 46100	<b>a</b> (	•					R0173		R0173-3AA
20 A M 0022	MIL - A - 46100	ا ن	7					B9623		B9623-5AB
20AM0023	MIL - A - 46100	) د	r					R0005		R0005 - 2AB
200 M V02	MIL - A - 46100	ם כ	4					RUCU3		R0003 - 37D
20 M M0026	MII A - 46100	2 6						Bossa		BROSSID
20 A M0027	MIIA-46100	2 0						Rossa		H9553
20 A M0028	MIL-A-46100	۵ ۵						R0356		R0356-1R1
20 A M 0029	MIL-A-46100	۵						R0442		R0442-3E
20 A M 0030	MIL-A-46100	Ω						R0005		K0005-1D
20 A M 003 1	MIL-A-46100	۵						R0005		R0005 - 1B1
20A M0032	MIL-A-46100	۵						R0569		R0569D
20AM0033	MIL-A-46100	Ω						320150		320150D
20 A M 0034	MIL-A-46100	Q						R0356		R0356-1CB
20 A M(0035	MIL-A-46100	ပ	7					87422		B7422-5BA1
20 A M 0036	MIL-A-46100	Ω						663911		8
20 A M 0037	MIL - A - 46100	Q						R0569		R0569D
20 A M 0038	MIL-A-46100	۵						B\$678		B8678 - 5DA
20 A M 0039	MIL-A-46100	۵						B\$660		B\$660-\$1AB
20 A M 0040	MIL-A-46100	۵						R0173		R0173-1J
20 A M 0041	MIL-A-46100	Ω						R1450		R1450-1B
20 A M0042	MIL-A-46100	۵						R0442		R0442-4K
20 A M 0043	MIL-A-46100	ပ	7					R0005		R0005 - 39DR1
20 A M0044	MIL-A-46100	ပ	7					R0005		R0005-39DR2
20 A M 0045	MIL-A-46100	Q						B7247		B7247-1C
20 A MODELE	MII A - 46100	۵						B8577		RE577

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602
DATABASE MODULE 1: MTL ID & MIL SPEC ATTRIBUTES DATABASE MODULE 2: PLATE PRODUCTION HISTORY

MIL. ARL/MD ID SPEC NO	REV	AMD	MATCL	PROD	FABR	HEAT TR	HEAT NO	LOT NO	PRODUCER PLATE NO
MIL-A-46100	Q						B3660	 	B\$660-\$2B
MIL-A-46100	۵						R1376		R1376D
MIL-A-46100	۵						R1726		R1726-3B
MIL-A-46100	۵						R1325		R1325D
MIL-A-46100	۵						R1726		R17262AB
MIL-A-46100	۵						R1726		R1726-5
MIL-A-46100	<b>a</b>			٠			R0442		R0442-4KR1
MIL-A-46100	0						R0442		R0442-4KR2
MIL-A-46100	۵						663447		258
MIL-A-46100	Ω						R2241		R2241-2A
MIL-A-46100	ပ						B8933		B8933-4
MIL-A-46100	۵						B8577		B8577-1
MIL-A-46100	۵						B8577		B8577-2
MIL-A-46100	a						B4582		B4582
MIL A 46100	Q						R3201		R3201-4B
MIL-A-46100	ပ	7					R2662		R2662-2A
MIL-A-46100	ပ	7					R3201		R3201-5A
MIL A 46100	Ω						R2662		R 2662 - 2E
MIL-A-46100	Q						R2627		R2627D
MIL-A-46100	Ω						R2533		R2533D
MIL-A-46100	Ω						R3442		R3442-12A
MIL-A-46100	Q						R3442		R3442-4
MIL-A-46100	۵						R3309		R3309-4
MIL-A-46100	ပ						R1726		R1726-2D
MIL-A-46100	<b>a</b>						B4582		B4582-R1
MIL-A-46100	۵						R 2662		R2662-39A
MIL-A-46100	Ω						R3258		R3258-39
MIL-A-46100	Ω						R0569		R0569
MIL-A-46100	۵						R3309		R3309-1D
MIL-A-46100	<u>a</u>					٠	R3309		R3309-1F
MIL-A-46100	ပ						BE933		B8933-4-50
MIL-A-46100	۵						R3550		R3650-3B4
MIL-A-46100	۵						R2533		R2533
MIL-A-46100	Ω						B9623		B9623-8A
MIL-A-46100	ပ	2					R2662		R2662-2AR1
MIL-A-46100	ပ	7					R 2662		R2662-2AR2
MIL-A-46106	α						R3309		R3309-1DR1
MIL-A-46100	Ω						R3309		R3309-1DR2
MIL-A-46100	Q						R3309		R3309-4R1
MIL-A-46100	۵						R3309		R33094R2
MIL-A-46100	Ω						R4181		R4181D
MIL-A-46100	Ω						R3442		R3442-2A
MIL - A - 46100	۵						R4820		R4820
MIL-A-46100	۵						R3309		R3309-1DRR1
MIIA-46100	_						1		
	>						R 3662		K 3667 1H

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602
DATABASE MODULE 1: MTL ID & MIL SPEC ATTRIBUTES
DATABASE MODULE 2: PLATE PRODUCTION HISTORY

•	MIL	ARL/MD ID SPEC NO		:0AM0093 MIL-A-46100	0AM0094 MIL - A - 46100		OAM0095 MIL-A-46100	0AM0096 MIL-A-46100
MIL	SPEC			100 D	100 1		100 D	100 D
MIL	SPEC	AMD						
MIL	SPEC	MATCL						
		PROD						
		FABR	1111111					
		HEAT TR HEAT NO LOT NO		R2241	0.0447	7440V	B9623	R3258
		LOT NO				-		-
	PRODUCER	PLATE NO	***************************************	R2241-2B	00 07700	07 - 7440 V	B9623-8A1R1	3258-1AA

PAGE 1 OF 3

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602
DATABASE MODULE 3: MATERIALS PROPERTIES

BRN		PI ATE TH	HARD	2	1.1	Ę	HAPD	TRMP
1,240	REL/MD ID	III INI	[BRN]	INUM	[FT-LB]	[FT-LB]	IRCI	(DEG F)
1749   514   741   185   175   514     1748   521   731   185   175   514     1750   486   769   113   147     1751   512   733   140   155   514     1752   514   753   140   155   514     1753   514   753   140   155   514     1754   477   805   163   133     1755   514   645   147   160     1756   512   731   147   160     1756   512   731   147   160     1756   512   731   147   160     1757   512   731   147   151     1758   514   77   121     1759   522   733   187   250     1751   522   733   187   250     1751   522   733   187   250     1751   522   733   187   250     1752   647   1168   133   133     1754   646   183   193     1756   647   646   183   193     1757   647   1168   135   138     1758   514   77   1218   152   131     1759   514   776   128   133   131     1750   514   1262   178   148   495     1751   646   151   133   123     1752   646   151   133   123     1753   647   776   128   138   148     1754   647   776   128   126     1755   514   1262   778   148   495     1756   648   151   133   123     1757   646   153   134     1758   514   1262   704   523     1758   648   1151   133   123     1758   648   1151   133   123     1758   648   1151   133   123     1759   670   776   723   257     1750   648   151   153   151     1751   652   704   223   257     1752   704   523   704   523   557     1753   704   705   705   705     1755   705   705   70	20 A M0001	1.240	411	99.9	11.7	12.3	417	1550
1748         514         7.51         15.0         14.5         514           1.176         486         7.69         11.3         14.7         514           1.364         486         7.69         11.3         14.7         11.0           1.365         514         7.53         14.0         15.5         514           1.251         504         6.65         14.7         19.3         14.7         15.0           1.251         504         6.65         14.7         19.3         14.7         15.0           1.251         504         6.65         14.7         16.0         15.3         514           1.177         512         7.31         14.7         16.0         15.3         14.7           1.084         4.77         8.05         16.3         13.3         495           1.095         4.77         8.05         12.47         13.3         495           1.171         522         7.83         18.7         25.0         13.3         495           1.171         522         7.83         18.7         25.0         14.7         14.4         477           1.154         494         7.43         <	20A MO002	1.749	514	7.41	18.5	17.5	514	1600
1,176   522   7,83   25.0   18,7     1,380	20 A M 0 0 0 3	1.748	514	7.51	15.0	14.5	514	1600
1.380   486   7.69   11.3   14.7     1.384   546   7.69   11.3   14.7     1.55   514   7.53   14.0   15.5     1.251   504   6.65   14.0   15.5     1.251   504   6.65   14.0   15.5     1.249   477   8.05   16.3   13.3     1.098   477   8.05   16.3   13.3     1.094   477   8.05   16.3   13.3     1.096   512   6.92   12.0   13.3     1.096   512   6.92   12.0   13.3     1.249   477   8.05   18.3   13.3     1.249   477   6.66   18.3   19.3     1.171   522   7.83   18.7   25.0     1.171   522   7.83   18.7   25.0     1.171   522   7.83   18.7   25.0     1.171   522   7.83   18.7   25.0     1.171   522   7.83   10.0   23.0     1.171   522   7.83   10.0   23.0     1.183   477   6.66   18.3   19.3     1.184   477   11.68   13.5   17.8     1.185   524   477   11.68   13.5     1.190   477   6.94   14.7   13.3     1.110   477   6.94   14.7   13.3     1.111   477   7.76   12.3   13.8     1.112   485   6.18   20.0   16.0     1.113   495   10.43   13.8   11.8     1.114   486   5.91   21.0   19.0     1.115   522   7.64   22.3   25.7     1.116   522   7.04   22.3   25.7     1.117   522   7.04   22.3   25.7     1.117   522   7.04   22.3   25.7     1.117   522   7.04   22.3   25.7     1.117   522   7.04   22.3   25.7     1.117   522   7.04   22.3   25.7     1.117   522   7.04   22.3   25.7     1.117   522   7.04   22.3   25.7     1.117   522   7.04   22.3   25.7     1.117   522   7.04   22.3   25.7     1.117   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3   25.7     1.118   522   7.04   22.3     1.118   7.04	20 A M0004	1.176	\$22	7.83	25.0	18.7		1550
1384   486	20 A M 0000 S	1.380	486	7.69	11.3	14.7		1550
1,963   504   768   14.3   17.0     1,755   514   7.53   14.0   15.5   514     1,249   477   7.51   14.0   15.5   514     1,249   477   8.05   16.3   13.3     1,096   512   6.92   12.0   13.3     1,096   512   6.92   12.0   13.3     1,096   512   6.92   12.0   13.3     1,096   512   6.92   12.0     1,387   516   8.18   20.3   13.3     1,171   522   7.83   18.7   25.0     1,171   522   7.83   18.7   25.0     1,171   522   7.83   18.7   25.0     1,171   522   7.83   18.7   25.0     1,171   522   7.83   18.7   25.0     1,171   522   7.83   18.7   25.0     1,171   522   7.83   18.7   25.0     1,171   522   7.83   18.7   25.0     1,171   522   7.83   18.7   25.0     1,171   522   7.83   18.7   25.0     1,171   522   7.83   19.3   514     1,184   477   11.68   13.5   13.3     1,154   477   7.44   10.7   14.3     1,176   514   7.24   10.7   14.3     1,176   514   7.56   12.3   13.3     1,171   477   7.44   10.7   14.8     1,171   495   10.43   13.8   11.8     1,171   495   10.43   13.8   11.8     1,171   495   10.43   13.3     1,171   496   5.91   21.0   19.0     1,172   496   5.91   21.0   19.0     1,173   496   5.91   21.0   19.0     1,174   522   7.04   22.3   25.7     1,175   524   7.04   22.3   25.7     1,177   524   7.04   22.3   25.7     1,177   524   7.04   22.3   25.7     1,177   524   7.04   22.3   25.7     1,186   7.04   22.3   25.7     1,197   6.04   7.04   22.3   25.7     1,106   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,107   6.04   7.04   22.3   25.7     1,10	20 A M 0006	1.384	486	7.69	11.3	14.7		1550
1.755         514         7.53         14.0         15.5         514           1.249         4.77         504         6.65         14.7         19.3         11.249         477         7.51         14.7         16.0         19.3         11.249         477         7.51         14.7         16.0         13.3         13.3         10.0         11.3         10.0         13.3         10.0         13.3         495         11.248         495         12.47         13.2         13.3         495         11.248         495         12.47         13.2         13.3         495         12.47         13.2         13.3         495         13.3         10.0         13.3         495         10.0         13.3         495         10.0         13.3         495         10.0         13.3         497         12.0         19.3         20.0         23.0         13.3         497         12.0         19.3         20.0         23.0         12.4         19.2         11.4         19.2         11.0         19.3         20.0         23.0         23.0         23.0         23.0         23.0         23.0         23.0         23.0         23.0         23.0         23.0         23.0         23.0         23.0<	20 A M 00007	1.963	504	7.68	14.3	17.0		1550
1.251         504         6.65         14.7         19.3           1.249         477         7.51         14.7         16.0           1.249         477         7.51         14.7         16.0           1.084         477         8.05         16.3         13.3           1.094         512         6.92         12.0         13.3         495           1.096         512         6.92         12.0         13.3         495           1.248         495         12.47         13.2         13.3         495           1.171         522         7.83         18.7         25.0           1.171         522         7.83         18.7         25.0           1.171         522         7.83         18.7         25.0           1.135         477         6.66         18.3         19.3         497           1.136         477         6.66         18.3         19.3         514           1.256         477         6.94         19.3         20.3         147           1.135         522         6.87         22.3         25.7         14.3           1.140         477         14.4         10	20 A M0008	1.755	514	7.53	14.0	15.5	\$14	1600
1.177         512         7.81         10.3         18.0           1.249         477         7.51         14.7         16.0           1.086         477         8.05         16.3         13.3           1.094         477         8.05         16.3         13.3           1.094         477         8.05         16.3         13.3           1.094         477         8.05         16.3         13.3         495           1.096         512         6.92         12.0         13.3         495         12.47         13.2         13.3         495           1.171         522         7.83         18.7         25.0         9.7         13.3         495         10.7         9.7         13.3         495         10.7         9.7         10.3<	20 A M 0009	1.251	504	6.65	14.7	19.3		1550
1.249     477     7.51     14.7     16.0       1.088     477     8.05     16.3     13.3       1.094     477     8.05     16.3     13.3       1.094     477     8.05     16.3     13.3       1.094     477     8.05     16.3     13.3       1.248     495     12.47     13.2     13.3       1.248     495     12.47     13.2     13.3       1.71     522     7.83     18.7     25.0       1.731     496     7.43     10.7     9.7       1.331     494     7.43     10.7     9.7       1.131     494     7.43     10.0     13.3       1.256     477     6.64     18.3     19.3       1.133     495     6.87     22.3     20.3       1.256     477     11.68     13.5     13.8       1.254     477     11.68     13.5     13.4       1.254     477     12.18     14.7     11.3       1.140     477     14.4     10.7     14.3       1.153     477     17.4     10.7     14.8     495       1.140     477     17.4     10.7     14.8     495 <t< td=""><td>20 A M 00 10</td><td>1.177</td><td>512</td><td>7.81</td><td>10.3</td><td>18.0</td><td></td><td>1550</td></t<>	20 A M 00 10	1.177	512	7.81	10.3	18.0		1550
1.088         477         8.05         16.3         13.3           1.094         577         8.05         16.3         13.3           1.096         512         8.18         20.3         13.3         495           1.248         495         12.47         13.2         13.3         495           1.171         522         7.83         18.7         25.0         495           1.171         522         7.83         18.7         25.0         495           1.171         522         7.83         18.7         25.0         495           1.131         486         7.43         10.0         13.3         495           1.133         494         7.43         10.0         13.3         477           1.134         494         7.43         10.0         13.3         477           1.135         522         6.84         19.3         514         477           1.245         477         11.68         13.5         13.8         477           1.246         477         11.64         10.7         19.3         514           1.256         514         12.6         14.3         14.8         495	20 A M0011	1.249	477	7.51	14.7	16.0		1550
1,094   477   8,05   16,3   13,3   13,3   1,096   15,2   12,0   13,3   13,5	20 A M 0012	1.088	477	8.05	16.3	13.3		1550
1,096         \$12         6,92         12.0         13.3         495           1,248         495         12.47         13.2         13.8         495           1,248         495         12.47         13.2         13.8         495           1,171         522         7.83         18.7         25.0         495           1,171         522         7.89         10.7         9.7         495           1,936         477         6.66         18.3         19.3         495           1,131         494         7.43         10.0         9.7         9.7           1,133         495         6.58         20.0         23.0         13.3         477           1,153         522         6.87         22.3         20.3         20.3         147           1,153         522         6.87         22.3         25.7         477         144         10.7         14.3         14.7         11.8         495         14.7         14.3         14.7         14.3         14.7         14.3         14.7         14.3         14.7         14.4         14.3         14.4         14.7         14.4         14.7         14.4         14.7	20 A M 0013	1.094	477	8.05	16.3	13.3		1550
1.387         516         8.18         20.3         13.3         495           1.248         495         12.47         13.2         13.8         495           1.171         522         7.83         18.7         25.0           1.951         486         7.89         10.7         9.7           1.936         477         6.66         18.3         19.3           1.936         477         6.66         18.3         19.3           1.131         494         7.43         10.0         13.3           1.266         477         6.66         18.3         19.3           1.135         522         6.87         20.0         23.0           1.266         477         10.0         13.3         477           1.266         477         11.68         13.5         17.8         477           1.245         477         11.68         13.5         17.8         477           1.245         477         12.18         15.2         17.8         477           1.246         477         12.18         14.3         14.3         14.3           1.140         477         12.18         14.3 <t< td=""><td>20 A M 0014</td><td>1.096</td><td>512</td><td>6.92</td><td>12.0</td><td>13.3</td><td></td><td>1550</td></t<>	20 A M 0014	1.096	512	6.92	12.0	13.3		1550
1.248     495     12.47     13.2     13.8     495       1.171     522     7.83     18.7     25.0       1.951     486     7.83     18.7     25.0       1.935     477     6.66     18.3     19.3       1.936     477     6.66     18.3     19.3       1.131     494     7.43     10.0     13.3       1.266     477     6.54     19.3     20.3       1.256     477     16.68     13.5     13.8       1.245     477     11.68     13.5     13.8       1.245     477     12.18     15.2     17.8     477       1.246     477     12.18     15.2     17.8     477       1.250     514     7.36     16.5     18.0     514       1.250     514     7.36     16.5     11.8     495       1.130     477     7.76     12.3     12.3     14.8     495       1.130     514     5.53     25.3     19.0     514       1.131     477     7.76     12.3     12.3     14.8     495       1.112     495     16.4     26.3     28.3     19.0     514       1.111     497	20 A M 0015	1.387	516	8.18	20.3	13.3	495	1620
1.171       522       7.83       18.7       25.0         1.951       486       7.89       10.7       9.7         1.936       477       6.66       18.3       19.3         1.936       477       6.64       18.3       19.3         1.131       494       7.43       10.0       13.3         1.133       495       6.58       20.0       23.0         1.266       477       6.94       19.3       20.3         1.153       522       6.87       22.3       25.7         1.246       477       11.68       13.5       13.8       477         1.245       477       12.18       15.2       17.8       477         1.246       477       12.89       21.0       19.3       514         1.759       514       7.36       16.5       18.0       514         1.750       514       7.36       16.3       18.0       514         1.750       514       7.36       16.3       18.3       11.8       477         1.110       477       7.76       12.3       13.3       11.8       495         1.111       495       6.18	20 A M 0016	1.248	495	12.47	13.2	13.8	495	1600
1.171       522       7.83       18.7       25.0         1.951       486       7.89       10.7       9.7         1.936       477       6.66       18.3       19.3         1.131       494       7.43       10.0       13.3         1.266       477       6.94       19.3       20.3         1.266       477       6.94       19.3       20.3         1.153       522       6.87       22.3       25.7         1.245       477       11.68       13.5       13.8       477         1.245       477       11.68       15.2       17.8       477         1.150       514       7.36       16.5       18.0       514         1.756       514       7.36       16.5       18.0       514         1.150       514       7.36       16.5       18.0       514         1.759       514       7.36       16.5       18.0       514         1.130       477       7.44       10.7       14.3       477         1.113       477       7.76       12.3       13.8       11.8       495         1.113       495       6.18       <	20 A M 0017	1.171	522	7.83	18.7	25.0		1550
1.951     486     7.89     10.7     9.7       1.936     477     6.66     18.3     19.3       1.131     494     7.43     10.0     13.3       1.133     495     6.58     20.0     23.0       1.266     477     6.94     19.3     20.3       1.153     522     6.37     22.3     25.7       1.245     477     11.68     13.5     13.8     477       1.245     477     12.18     15.2     17.8     477       1.245     477     12.18     15.2     17.8     477       1.246     514     7.36     16.5     18.0     514       1.756     514     7.36     16.5     18.0     514       1.759     514     5.33     25.3     19.0     514       1.759     514     5.62     17.8     14.8     495       1.130     495     10.43     13.8     11.8     477       1.112     495     10.43     13.8     11.8     477       1.112     495     6.18     20.0     16.0     495       1.112     495     6.18     20.0     16.0     495       1.112     486     5.91 <td< td=""><td>20 A M0018</td><td>1.171</td><td>522</td><td>7.83</td><td>18.7</td><td>25.0</td><td></td><td>1550</td></td<>	20 A M0018	1.171	522	7.83	18.7	25.0		1550
1.936       477       6.66       18.3       19.3         1.131       494       7.43       10.0       13.3         1.266       477       6.58       20.0       23.0         1.266       477       6.94       19.3       20.3         1.153       522       6.87       22.3       25.7         1.154       477       11.68       13.5       13.8       477         1.245       477       12.18       15.2       17.8       477         1.256       514       7.36       16.5       18.0       514         1.250       514       7.36       16.5       18.0       514         1.140       477       7.44       10.7       14.3       14.3         1.150       514       12.62       17.8       14.8       495         1.131       495       10.43       13.3       11.8       477         1.112       495       10.43       13.3       11.8       495         1.112       495       6.1       26.3       28.3       10.0       14.8       495         1.112       496       5.9       11.0       12.0       10.0       10.0	20 A M0019	1.951	486	7.89	10.7	9.7		1550
133   494   7.43   10.0   13.3     1266   477   6.94   19.3   20.3     1266   477   6.94   19.3   20.3     1254   477   11.68   13.5   13.8   477     1245   477   12.18   15.2   17.8   477     1245   477   12.18   15.2   17.8   477     1256   514   7.44   10.7   14.3     1759   514   5.53   25.3   19.0     1250   514   5.53   25.3   19.0     1250   514   5.53   25.3   19.0     1250   514   5.53   25.3   19.0     1250   514   5.53   25.3   19.0     1250   514   5.53   25.3   19.0     1250   514   2.62   17.8   14.8   495     1260   494   7.89   11.0   12.7     1256   486   15.1   13.3   12.3     1256   486   11.51   13.3   12.3     1256   486   11.51   13.3   12.3     1256   486   11.51   15.3   19.3     1256   486   11.51   15.3   19.3     1256   486   11.51   15.3   25.7     1270   514   52.2   7.04   22.3   25.7     1270   514   52.2   7.04   22.3   25.7     1270   514   52.2   7.04   22.3   25.7     1270   514   52.2   7.04   22.3   25.7     1270   514   52.2   7.04   22.3   25.7     1270   514   52.2   7.04   22.3   25.7     1270   52.1   52.2   7.04   22.3   25.7     1270   52.1   52.2   7.04   22.3   25.7     1270   52.1   52.2   7.04   22.3   25.7     1270   52.1   52.2   7.04   22.3   25.7     1270   52.1   52.2   7.04   22.3   25.7     1270   52.1   52.2   7.04   22.3   25.7     1270   52.1   52.2   7.04   22.3   25.7     1270   52.1   52.2   7.04   22.3   25.7     1270   52.1   52.2   7.04   22.3   25.7     1270   52.1   52.2   7.04   22.3   25.7     1270   52.1   52.2   7.04   22.3   25.7     1270   52.1   52.1   52.1   52.1     1270   52.1   52.1   52.1   52.1     1270   52.1   52.1   52.1   52.1     1270   52.1   52.1   52.1   52.1     1270   52.1   52.1   52.1   52.1     1270   52.1   52.1   52.1   52.1     1270   52.1   52.1   52.1   52.1   52.1     1270   52.1   52.1   52.1   52.1   52.1     1270   52.1   52.1   52.1   52.1   52.1     1270   52.1   52.1   52.1   52.1   52.1     1270   52.1   52.1   52.1   52.1   52.1   52.1     1270   52.1   52.1   52.1   52.1   52.1   52.1   52.1   52.1   52.	20 A M 0020	1.936	477	99.9	18.3	19.3		1550
1.353       495       6.58       20.0       23.0         1.266       477       6.94       19.3       20.3         1.153       522       6.87       22.3       25.7         1.245       477       11.68       13.5       13.8       477         1.245       477       12.18       15.2       17.8       477         1.256       514       7.36       16.5       18.0       514         1.257       477       7.44       10.7       14.3       514         1.140       477       6.94       14.7       13.3       514         1.759       514       5.53       25.3       19.0       514         1.750       514       15.62       17.8       14.8       495         1.750       514       12.62       17.8       14.8       495         1.131       477       7.76       12.3       13.7       477         1.112       495       6.18       20.0       16.0       495         1.112       495       6.18       20.0       16.0       495         1.112       486       5.91       21.0       12.3         1.102	20 A M 0021	1.131	464	7.43	10.0	13.3		1550
1.266       477       6.94       19.3       20.3         1.153       522       6.87       22.3       25.7         1.245       477       11.68       13.5       13.8       477         1.245       477       11.68       13.5       13.8       477         1.245       477       12.18       15.2       17.8       477         1.756       514       7.36       16.5       18.0       514         1.759       514       7.36       16.5       18.0       514         1.750       514       5.53       25.3       19.0       514         1.750       514       12.62       17.8       14.8       495         1.750       514       12.62       17.8       14.8       495         1.130       522       7.64       26.3       28.3       11.8       477         1.112       495       6.18       20.0       16.0       495       12.3       12.3         1.112       495       6.18       20.0       16.0       495       12.3       12.3         1.112       486       5.91       21.0       12.3       12.3       12.3       12.3	20 A M 0022	1.353	495	6.58	20.0	23.0		1550
1.153     522     6.87     22.3     25.7       1.245     477     11.68     13.5     13.8     477       1.245     477     11.68     13.5     13.8     477       1.357     506     12.89     21.0     19.3     514       1.756     514     7.36     16.5     18.0     514       1.237     477     7.44     10.7     14.3     514       1.140     477     7.44     10.7     14.8     495       1.250     514     5.53     25.3     19.0     514       1.250     514     12.62     17.8     14.8     495       1.250     514     12.62     17.8     14.8     495       1.131     495     10.43     13.3     13.7       1.112     495     6.18     20.0     16.0     495       1.236     514     12.62     17.8     14.8     495       1.112     486     5.91     21.0     19.0       1.112     486     5.91     21.0     19.3       1.256     486     5.91     21.0     19.3       1.102     352     7.04     22.3     25.7       1.167     52.3     25.7   <	20 A M 0023	1.266	177	6.94	19.3	20.3		1550
1.254     477     11.68     13.5     13.8     477       1.245     477     12.18     15.2     17.8     477       1.245     506     12.89     21.0     19.3     514       1.237     477     7.44     10.7     14.3     514       1.140     477     7.44     10.7     14.3     514       1.250     514     5.53     25.3     19.0     514       1.250     514     12.62     17.8     14.8     495       1.250     514     12.62     17.8     14.8     495       1.131     495     10.43     13.3     11.8     477       1.112     495     6.18     20.0     16.0     495       1.112     495     6.18     20.0     16.0     495       1.236     514     12.62     17.8     14.8     495       1.112     486     5.91     21.0     19.0     14.8     495       1.256     486     5.91     21.0     19.0     14.8     495       1.102     352     1.92     24.0     37.7     14.8     495       1.147     522     7.04     22.3     25.7     25.7       1.750	20 A M 0024	1.153	522	6.87	22.3	25.7		1550
1.245     477     12.18     15.2     17.8     477       1.357     506     12.89     21.0     19.3     514       1.756     514     7.36     16.5     18.0     514       1.757     477     6.94     14.7     13.3     514       1.759     514     5.53     19.0     514       1.250     514     12.62     17.8     14.8     495       1.381     495     10.43     13.8     11.8     495       1.113     477     7.76     12.3     13.7     495       1.112     495     6.18     26.3     28.3     14.8     495       1.112     495     6.18     20.0     16.0     495       1.112     495     11.0     12.7     495       1.112     486     5.91     21.0     19.0       1.256     486     11.51     13.3     12.3       1.102     352     1.04     22.3     25.7       1.147     522     7.04     22.3     25.7       1.167     523     25.7     26.0     25.3       1.268     496     11.6     19.3       1.117     486     11.51     13.3     12.3 <td>20 A M 0025</td> <td>1.254</td> <td>477</td> <td>11.68</td> <td>13.5</td> <td>13.8</td> <td>477</td> <td>1600</td>	20 A M 0025	1.254	477	11.68	13.5	13.8	477	1600
1.357     506     12.89     21.0     19.3     514       1.756     514     7.36     16.5     18.0     514       1.237     477     6.94     14.7     13.3     514       1.140     477     6.94     14.7     13.3     514       1.250     514     5.53     25.3     19.0     514       1.250     514     12.62     17.8     14.8     495       1.381     495     10.43     13.8     11.8     495       1.113     477     7.76     12.3     13.7     477       1.110     495     6.18     26.3     28.3     495       1.112     495     6.18     20.0     16.0     495       1.112     496     5.19     11.0     12.7     495       1.112     486     5.91     21.0     19.0       1.112     486     5.91     21.0     19.0       1.112     486     11.51     13.3     12.3       1.117     486     11.51     13.3     12.3       1.117     486     11.51     13.3     12.3       1.117     486     11.51     13.3     12.3       1.117     522     7.04	20 A M 0026	1.245	477	12.18	15.2	17.8	417	1600
1.756     514     7.36     16.5     18.0     514       1.237     477     7.44     10.7     14.3     514       1.140     477     6.94     14.7     13.3     514       1.759     514     5.53     25.3     19.0     514       1.250     514     12.62     17.8     14.8     495       1.131     497     7.76     12.3     13.7     477       1.112     495     6.18     20.0     16.0     495       1.112     495     6.18     20.0     16.0     495       1.236     514     12.62     17.8     14.8     495       1.970     494     7.89     11.0     12.7       1.112     486     5.91     21.0     19.0       1.256     486     11.51     13.3     12.3       1.102     352     1.94     22.3     25.7       1.147     522     7.04     22.3     25.7       1.75     514     22.3     25.7       1.75     514     22.3     25.7	20 A M 0027	1.357	206	12.89	21.0	19.3	514	1620
1.237     477     7.44     10.7     14.3       1.140     477     6.94     14.7     13.3       1.159     514     5.53     25.3     19.0     514       1.250     514     12.62     17.8     14.8     495       1.381     495     10.43     13.8     11.8     477       1.113     477     7.76     12.3     13.7       1.180     522     7.64     26.3     28.3     477       1.112     495     6.18     20.0     16.0     495       1.236     514     12.62     17.8     14.8     495       1.970     494     7.89     11.0     12.7       1.112     486     5.91     21.0     19.0       1.256     486     11.51     13.3     12.3       1.267     477     6.21     15.3     12.3       1.102     352     7.04     22.3     25.7       1.147     522     7.04     22.3     25.7       1.75     514     22.3     25.7       1.75     514     22.3     25.7	20 A M 0028	1.756	514	7.36	16.5	18.0	\$14	1600
1.140 477 6.94 14.7 13.3 1.759 514 5.53 25.3 19.0 514 1.250 514 12.62 17.8 14.8 495 1.381 495 10.43 13.8 11.8 477 1.113 477 7.76 12.3 13.7 1.113 477 7.76 12.3 13.7 1.112 495 6.18 20.0 16.0 495 1.236 514 12.62 17.8 14.8 495 1.970 494 7.89 11.0 12.7 1.112 486 5.91 21.0 19.0 1.256 486 11.51 13.3 12.3 1.256 477 6.21 15.3 19.3 1.102 352 7.04 22.3 25.7 1.162 522 7.04 22.3 25.7 1.175	20 A M 0029	1.237	477	7.44	10.7	14.3		1550
1.759     514     5.53     25.3     19.0     514       1.250     514     12.62     17.8     14.8     495       1.381     495     10.43     13.8     11.8     477       1.113     477     7.76     12.3     13.7     477       1.1180     522     7.64     26.3     28.3     477       1.112     495     6.18     20.0     16.0     495       1.236     514     12.62     17.8     14.8     495       1.112     486     5.91     21.0     19.0       1.256     486     11.51     13.3     12.3       1.26     477     6.21     15.3     19.3       1.102     352     1.92     24.0     37.7       1.147     522     7.04     22.3     25.7       1.75     514     22.3     25.7       1.75     514     22.3     25.7       1.75     514     22.3     25.7	20AM0030	1.140	417	6.94	14.7	13.3		1550
1.250     514     12.62     17.8     14.8     495       1.381     495     10.43     13.8     11.8     477       1.113     495     10.43     13.3     11.8     477       1.112     495     6.18     20.0     16.0     495       1.236     514     12.62     17.8     14.8     495       1.970     494     7.89     11.0     12.7       1.112     486     5.91     21.0     19.0       1.256     486     11.51     13.3     12.3       1.226     477     6.21     15.3     19.3       1.102     352     1.92     24.0     37.7       1.147     522     7.04     22.3     25.7       1.755     510     22.3     25.7       1.167     522     7.04     22.3     25.7       1.755     514     22.3     25.7       1.757     514     22.3     25.7	20 A M 003 1	1.759	514	5.53	25.3	19.0	\$14	1600
1.381     495     10.43     13.8     11.8     477       1.113     477     7.76     12.3     13.7       1.180     522     7.64     26.3     28.3       1.112     495     6.18     20.0     16.0     495       1.236     514     12.62     17.8     14.8     495       1.112     486     5.91     21.0     19.0       1.256     486     11.51     13.3     12.3       1.226     477     6.21     15.3     19.3       1.102     352     1.92     24.0     37.7       1.147     522     7.04     22.3     25.7       1.755     514     22.3     25.7       1.757     52.3     25.7	20 A M 0032	1.250	514	12.62	17.8	14.8	495	1600
1.113     477     7.76     12.3     13.7       1.180     522     7.64     26.3     28.3       1.112     495     6.18     20.0     16.0     495       1.236     514     12.62     17.8     14.8     495       1.112     486     5.91     21.0     19.0       1.256     486     11.51     13.3     12.3       1.226     477     6.21     15.3     19.3       1.102     352     1.92     24.0     37.7       1.147     522     7.04     22.3     25.7       1.755     514     6.21     22.3     25.7       1.167     522     7.04     22.3     25.7       1.755     514     6.21     52.3     25.7       1.167     522     7.04     22.3     25.7       1.755     514     6.21     52.3     25.7       1.755     514     22.3     25.7	20 A M 0033	1.381	495	10.43	13.8	11.8	477	1600
1.180         522         7.64         26.3         28.3           1.112         495         6.18         20.0         16.0         495           1.236         514         12.62         17.8         14.8         495           1.970         494         7.89         11.0         12.7         495           1.112         486         5.91         21.0         19.0         19.0           1.256         486         11.51         13.3         12.3           1.226         477         6.21         15.3         19.3           1.102         352         1.92         24.0         37.7           1.147         522         7.04         22.3         25.7           1.755         514         6.0         22.3         25.7           1.755         514         6.0         22.3         25.7	20 A M 0034	1.113	477	7.76	12.3	13.7		1550
1.112     495     6.18     20.0     16.0     495       1.236     514     12.62     17.8     14.8     495       1.970     494     7.89     11.0     12.7     495       1.112     486     5.91     21.0     19.0       1.256     486     11.51     13.3     12.3       1.226     477     6.21     15.3     19.3       1.102     352     1.92     24.0     37.7       1.147     522     7.04     22.3     25.7       1.162     524     7.04     22.3     25.7       1.75     514     6.2     7.3     19.0     514	20 A M 0035	1.180	522	7.64	26.3	28.3		1550
1.236     514     12.62     17.8     14.8     495       1.970     494     7.89     11.0     12.7       1.112     486     5.91     21.0     19.0       1.256     486     11.51     13.3     12.3       1.226     477     6.21     15.3     19.3       1.102     352     1.92     24.0     37.7       1.147     522     7.04     22.3     25.7       1.755     514     20.3     25.7       1.757     514     52.3     25.7	20 A M 0036	1.112	495	6.18	20.0	16.0	495	1650
1.970     494     7.89     11.0     12.7       1.112     486     5.91     21.0     19.0       1.256     486     11.51     13.3     12.3       1.226     477     6.21     15.3     19.3       1.102     352     1.92     24.0     37.7       1.147     522     7.04     22.3     25.7       1.755     514     20.3     25.7       1.757     514     20.3     25.7	20 A M 0037	1.236	514	12.62	17.8	14.8	495	1600
1.112 486 5.91 21.0 19.0 1.256 486 11.51 13.3 12.3 1.226 477 6.21 15.3 19.3 1.102 352 1.92 24.0 37.7 1.147 522 7.04 22.3 25.7 1.155 512 7.04 22.3 25.7 1.155 512 7.04 22.3 25.7	20 A M 0038	1.970	161	7.89	11.0	12.7		1550
1.256 486 11.51 13.3 12.3 1.226 477 6.21 15.3 19.3 1.102 352 1.92 24.0 37.7 1.147 522 7.04 22.3 25.7 1.162 522 7.04 22.3 25.7 1.155 514 6.9 25.3 19.0 514	20 A M0039	1.112	486	5.91	21.0	19.0		1550
1.226 477 6.21 15.3 19.3 1.102 352 1.92 24.0 37.7 1.147 522 7.04 22.3 25.7 1.162 522 7.04 22.3 25.7 1.155 514 6.0 55.4	20 A M0040	1.256	486	11.51	13.3	12.3		1550
1.102 352 1.92 24.0 37.7 1.147 522 7.04 22.3 25.7 1.162 522 7.04 22.3 25.7	20 A M 004 1	1.226	417	6.21	15.3	19.3		1550
1.147 522 7.04 22.3 25.7 1.162 522 7.04 22.3 25.7 1.755 514 6.92 25.3 19.0 514	20 A M 0042	1.102	352	1.92	24.0	37.7		1660
1.162 522 7.04 22.3 25.7 1.162 5.14 6.92 25.3 19.0 5.14	20 A M0043	1.147	522	7.04	22.3	25.7		1550
1175 614 6.02 25.3 10.0 614	20 A M 0044	1.162	522	7.04	22.3	25.7		1550
	1 1 1 1 1 1							

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602
DATABASE MODULE 3: MATERIALS PROPERTIES

Column   C	[1N]   [BRN]   [NUM]   [FT-L]   [1.252   495   5.91   1.250   11.26   11.240   477   12.05   11.240   477   13.74   13.74   11.100   512   11.90   11.100   512   11.90   11.120   512   11.90   11.120   512   11.90   11.120   512   11.90   11.120   512   11.240   514   5.89   13.15   11.252   477   17.45   17.56   11.27   486   6.79   11.27   486   6.79   11.27   486   6.79   11.27   477   7.76   11.27   477   7.76   11.27   477   7.76   11.27   477   7.76   11.27   486   11.27   486   11.27   486   11.27   486   11.27   486   6.77   6.78   6.28	FT-LB		114 114 114 115 115 115 115 115 115 115	1550 1600 1600 1600 1550 1550 1550 1650 16
1,222         495         5.91         26.3           1,759         514         7.89         11.2         14.8           1,759         514         7.89         10.7         26.3           1,240         477         12.05         23.3         18.8           1,102         512         13.74         20.0         26.7           1,102         512         11.90         23.3         23.7           1,102         512         11.90         23.3         23.7           1,102         512         11.90         23.3         23.7           1,102         514         5.89         14.0         12.0           1,122         514         5.89         14.0         12.0           1,135         486         6.79         14.3         67.3           1,136         486         6.79         16.3         17.3           1,137         477         7.76         19.3         24.3           1,137         477         7.76         19.3         17.3           1,137         486         10.71         25.7         24.3           1,137         486         10.7         17.3         18.3 </th <th>1,222 495 5.91 1,237 507 11.56 1,139 514 7.89 1,102 534 13.74 1,102 534 13.74 1,102 512 11.90 1,1102 512 11.90 1,1103 512 11.90 1,120 512 11.90 1,120 512 11.90 1,120 512 11.90 1,120 512 11.90 1,120 512 11.90 1,120 512 11.90 1,120 512 11.90 1,121 646 6.79 1,134 677 7.76 1,135 669 1,137 679 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 696 1,137 695 696 1,137 695 696 1,137 695 696 1,137 695 696 1,138 697 11.56 1,134 514 12.83 1,134 7,16</th> <th></th> <th>26.3 14.8 18.8 26.7 26.7 26.3 27.7 26.3 27.7 26.0 26.0 26.0 26.0 26.0 26.0 26.0 26.0</th> <th>514 514 514 514 514 514 514 514 514 514</th> <th>                                     </th>	1,222 495 5.91 1,237 507 11.56 1,139 514 7.89 1,102 534 13.74 1,102 534 13.74 1,102 512 11.90 1,1102 512 11.90 1,1103 512 11.90 1,120 512 11.90 1,120 512 11.90 1,120 512 11.90 1,120 512 11.90 1,120 512 11.90 1,120 512 11.90 1,120 512 11.90 1,121 646 6.79 1,134 677 7.76 1,135 669 1,137 679 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 669 1,137 695 696 1,137 695 696 1,137 695 696 1,137 695 696 1,137 695 696 1,138 697 11.56 1,134 514 12.83 1,134 7,16		26.3 14.8 18.8 26.7 26.7 26.3 27.7 26.3 27.7 26.0 26.0 26.0 26.0 26.0 26.0 26.0 26.0	514 514 514 514 514 514 514 514 514 514	
1.237         507         11.56         17.2         14.8           1.759         514         7.89         10.7         21.0           1.240         477         12.05         23.5         18.8           1.102         534         13.74         20.0         26.7           1.102         512         11.90         23.3         23.7           1.102         512         11.90         23.3         23.7           1.102         514         5.89         14.0         12.0           1.102         514         5.89         14.0         12.0           1.102         514         10.36         46.3         67.3           1.128         495         13.15         18.3         16.3           1.20         514         12.50         22.0         21.0           1.20         514         12.50         11.5         11.5           1.175         446         7.45         17.0         19.0           1.176         477         7.76         16.0         16.0           1.224         514         11.62         20.0         20.3           1.145         514         11.75         30.0	1,237 507 11.56 1,240 477 12.05 1,102 534 7.89 1,102 534 13.74 1,102 534 13.74 1,102 512 11.90 1,102 512 11.90 1,110 512 11.90 1,110 512 11.90 1,110 512 11.90 1,128 495 13.15 1,286 495 13.15 1,286 495 13.15 1,286 495 13.15 1,286 495 13.15 1,286 495 13.15 1,286 495 13.15 1,286 495 13.15 1,286 495 13.15 1,286 495 13.15 1,286 495 13.15 1,286 495 12.51 1,387 495 6.69 1,176 506 11.27 1,286 495 6.69 1,176 506 11.27 1,286 495 6.69 1,170 486 6.77 1,187 1.187 1,188 486 6.77 1,189 486 6.77 1,189 486 6.77 1,189 486 6.77 1,189 486 6.77 1,181 5.14 7.63 1,181 5.14 1.23 1,181 5.14 1.15 1,181 5.14 1.15 1,181 5.14 1.15 1,181 5.14 1.15 1,181 5.14 1.15 1,181 5.14 1.15 1,181 5.14 1.15 1,181 5.14 1.15 1,181 5.14 1.15 1,181 5.14 1.15 1,181 5.14 1.15 1,181 5.14 1.15 1,181 5.14 1.15 1,181 5.14 1.15		14.8 21.0 26.7 26.7 23.7 23.7 20.3 20.3 20.3 20.3 20.3 20.3 20.3 20.3	514 514 514 515 516 517 517 518 519 519 519 519 519 519 519 519 519 519	600 600 600 600 600 600 600 600 600 600
1.759   514   7.89   10.7   21.0     1.240	1,759 514 7.89 1,240 477 12.05 1,102 534 13.74 1,102 534 13.74 1,102 512 11.90 1,102 512 11.90 1,103 512 11.90 1,1120 512 11.90 1,128 695 13.15 1,256 695 13.15 1,262 514 12.49 1,136 696 1,137 666 1,145 646 77 7.76 1,274 514 11.62 1,274 514 11.62 1,274 514 11.62 1,274 514 11.62 1,274 514 11.62 1,274 514 11.75 1,274 504 11.27 1,276 506 11.27 1,276 506 11.27 1,276 506 11.27 1,276 506 11.27 1,276 506 11.27 1,276 506 11.27 1,276 506 11.27 1,276 506 11.27 1,276 506 11.27 1,276 506 11.27 1,276 512 11.59 1,177 716 716 1,177 716 716 1,177 717 716 1,177 717 716 1,177 717 716 1,177 717 716 1,177 717 716 1,177 717 716 1,177 717 716 1,177 717 717 1,17		21.0 28.8 36.7 26.7 23.7 23.7 20.3 21.0 20.3 20.3 20.3 20.3 20.3 20.3 20.3 20	514 514 515 516 517 517 517 517 517 517 517 517 517 517	999 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
1,240   477   12.05   23.5   18.8   1.244   477   13.74   20.0   26.7   1.102   53.4   13.74   20.0   26.7   1.102   51.2   11.90   23.3   23.7   1.142   51.4   13.74   20.0   26.7   1.142   51.4   5.89   14.0   23.3   23.7   1.142   51.4   5.89   14.0   23.3   23.7   1.128   47.7   10.36   43.3   67.3   67.3   1.256   49.5   13.15   18.3   16.3   67.3   1.256   49.5   13.15   18.3   16.3   67.3   1.126   49.5   13.15   18.3   16.3   1.126   49.5   13.15   18.3   16.3   17.3   19.0   1.175   49.6   6.79   16.3   17.2   16.8   17.2   16.8   17.2   16.8   17.2   16.8   17.2   16.9   19.2   17.2   16.8   17.2   16.9   19.2   17.3   19.2   17.3   19.2   17.3   19.3	1.240		18.8 2.5.7 23.7 23.7 20.3 20.3 20.3 16.8 16.8 16.0 16.0 16.0 16.0 16.0 16.0 16.0 16.0	22	099 091 092 093 093 093 093 093 093 093 093
1,102   554   13.74   20.0   26.7     1,102   512   11.90   23.3   23.7     1,102   512   11.90   23.3   23.7     1,103   512   11.90   23.3   23.7     1,104   512   11.90   23.3   23.7     1,105   512   11.90   23.3   23.7     1,125   477   10.36   43.3   61.3     1,226   645   13.15   18.3   16.3     1,226   514   12.50   22.0   21.5     1,136   486   6.79   16.3   17.3     1,274   477   7.76   19.3   20.3     1,274   477   7.76   19.3   20.3     1,274   477   7.76   19.3   20.3     1,274   486   10.71   2.57   24.3     1,275   514   11.75   30.0   26.0     1,276   486   10.71   2.57   24.3     1,276   486   6.79   18.3   18.3     1,276   486   6.77   16.3     1,276   486   6.77   16.3     1,276   486   6.77   16.3     1,276   486   6.77   16.3     1,178   486   6.77   16.3     1,178   486   6.77   16.3     1,178   486   6.77   16.3     1,179   486   6.77   16.3     1,170   514   17.5   30.0   26.0     1,171   514   11.75   30.0   26.0     1,172   514   11.75   30.0   26.0     1,173   514   11.75   30.0   26.0     1,174   514   11.75   30.0   26.0     1,175   514   11.75   30.0   26.0     1,176   514   12.83   20.3   20.7     1,176   514   12.83   20.3   20.7     1,176   514   12.83   20.3     1,177   514   12.83   20.3     1,178   486   11.75   20.3     1,178   486   6.77   16.3     1,178   486   6.77   16.3     1,178   486   6.77   16.3     1,178   486   6.77   16.3     1,178   514   11.75   30.0     1,178   514   12.83   20.3     1,177   6.75   20.0     1,177   20.0   20.0     1,178   514   12.83   20.3     1,177   20.0     1,177   20.0     1,177   20.0     1,177   20.0     1,177   20.0     1,178   20.0     1,177   20.0     1,178   20.0     1,177   20.0     1,178   20.0     1,177   20.0     1,178   20.0     1,177   20.0     1,178   20.0     1,178   20.0     1,177   20.0     1,177   20.0     1,178   20.0     1,177   20.0     1,177   20.0     1,178   20.0     1,178   20.0     1,178   20.0     1,178   20.0     1,178   20.0     1,178   20.0     1,178   20.0     1,178   20.0     1,178   20.0     1,178   20.0	1.102		26.7 23.7 23.7 23.7 23.7 23.7 24.3 26.0 26.0 26.0 26.0 26.0 26.0 26.0 26.0	22	8
1,224	1.224 477 13.74 1.102 512 11.90 1.103 512 11.90 1.142 513 11.90 1.1252 477 10.36 1.218 495 13.15 1.220 514 12.50 1.136 495 13.15 1.24 486 1.74 1.24 514 11.62 1.24 514 11.62 1.24 514 11.75 1.25 514 12.49 1.27 477 7.76 1.27 6.79 1.27 6.69 1.27 6.69 1.27 6.69 1.27 6.69 1.27 6.69 1.28 6.69 1.29 7 514 12.21 1.30 6.69 1.20 6.69 1.20 6.69 1.20 6.69 1.20 6.69 1.21 7.63 1.21 7.63 1.22 7.63 1.24 6.95 6.66 1.27 7.63 1.28 6.95 1.29 7 7.63 1.20 6.95 1.20 6.95 1.20 6.95 1.21 7.63 1.22 7.63 1.24 6.95 6.96 1.27 7.63 1.28 6.95 1.29 7.81 1.75 1.24 7.63 1.24 6.95 6.96 1.17 7.91 1.18 514 11.75 1.24 514 11.75 1.24 514 11.75 1.24 514 11.75 1.25 514 11.75 1.25 514 11.75 1.25 514 11.75 1.25 514 11.75 1.25 514 11.75 1.25 6.65 1.25 6.65 1.25 6.65 1.25 6.65 1.25 7.63 1.25		36.3 23.7 21.0 21.0 20.3 20.3 20.3 20.3 24.3 26.0 26.0 26.0 26.0 26.0 26.0 26.0 26.0	\$12 \$12 \$14 \$14 \$14 \$15 \$15 \$16 \$16 \$16 \$16 \$16 \$16 \$16 \$16 \$16 \$16	25
1.102   512   11.90   23.3   23.7     1.102   512   11.90   23.3   23.7     1.123   477   10.36   43.3   67.3     1.126   495   13.15   18.3   16.3     1.236   495   13.15   18.3   16.3     1.246   495   13.15   18.3   16.3     1.274   477   6.79   16.0   19.0     1.274   477   7.76   19.3     1.274   477   7.76   19.3     1.275   514   11.62   20.0     1.276   486   10.71   25.7   24.3     1.176   506   11.27   17.3   12.3     1.187   486   10.71   25.7   24.3     1.197   512   8.67   18.3     1.246   495   6.66   18.7   16.0     1.246   495   6.66   18.7   16.0     1.246   495   6.66   18.7   16.0     1.247   514   12.21   17.0   16.3     1.248   486   6.77   16.3     1.249   514   12.21   17.0   16.3     1.240   495   6.66   18.7   16.3     1.241   514   7.63   30.0   26.0     1.178   486   6.77   16.3     1.242   514   7.63   30.0   26.0     1.145   514   7.63   30.0   26.0     1.147   514   7.63   30.0   26.0     1.148   514   7.63   30.0   26.0     1.149   514   7.63   30.0   26.0     1.140   514   7.63   30.0   26.0     1.141   514   7.63   30.0   26.0     1.142   495   11.75   30.0   26.0     1.143   514   7.63   30.0   26.0     1.145   514   7.63   30.0   26.0     1.147   514   7.63   30.0   26.0     1.148   514   7.63   30.0   26.0     1.149   514   7.63   30.0   26.0     1.140   514   7.63   30.0   26.0     1.141   514   7.63   30.0   26.0     1.142   514   7.63   30.0   26.0     1.145   514   7.63   30.0   26.0     1.155   514   7.63   30.0   26.0     1.156   6.66   11.75   30.0     1.257   514   7.63   30.0     1.258   514   7.63   30.0     1.259   514   7.63   30.0     1.250   514   7.63   30.0     1.251   514   7.63   30.0     1.252   514   7.63   30.0     1.253   514   7.63   30.0     1.254   514   7.63   30.0     1.255   514   7.63   30.0     1.257   514   7.63   30.0     1.258   514   7.63   30.0     1.259   514   7.63   30.0     1.250   514   7.63   30.0     1.251   514   7.63   30.0     1.252   514   7.63   30.0     1.253   514   7.63   30.0     1.254   514   7.63   30.0     1.255   514	1.102 512 11.90 1.104 512 11.90 1.105 512 11.90 1.125 477 10.36 1.218 495 13.15 1.220 514 12.50 1.781 506 11.04 1.175 486 6.79 1.274 477 6.72 1.262 514 11.62 1.274 477 6.72 1.262 514 11.62 1.274 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 486 6.77 1.268 495 6.69 1.170 486 6.77 1.268 495 6.60 1.171 486 6.77 1.268 495 6.60 1.172 514 11.75 1.245 486 6.77 1.245 486 6.77 1.246 495 6.60 1.178 486 6.77 1.245 495 11.75 1.242 495 11.75 1.243 514 11.75 1.245 514 11.75 1.245 514 11.75 1.242 495 11.56 1.347 514 11.75 1.347 514 11.75 1.347 514 11.75 1.347 514 11.75 1.348 1.367 11.36		23.7 6.12.0 6.13.4 16.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0	512 514 514 514 514 514 514 514 514 514 514	25
1,100   512   11,90   23.3   23.7     1,142   514   5.89   14.0   12.0     1,120   512   7.58   24.3   67.3     1,120   512   7.58   24.3   67.3     1,20   514   12.50   22.0   24.3     1,20   514   12.50   22.0   24.3     1,781   506   11.04   19.5   21.5     1,781   506   11.04   19.5   21.5     1,781   506   11.04   19.5   21.5     1,274   514   11.62   20.0   19.2     1,274   514   11.62   20.0   19.2     1,274   514   11.75   30.0   20.3     1,274   514   11.75   30.0   20.3     1,274   514   11.75   30.0   20.3     1,275   514   11.75   30.0   20.3     1,276   504   12.51   17.3   12.3     1,276   504   12.51   17.3   12.3     1,276   516   18.3   22.0     1,176   506   18.3   22.0     1,176   516   6.6   18.7   21.7     1,276   517   16.3   10.0     1,276   517   16.3   10.0     1,276   517   16.3   30.0   26.0     1,176   517   11.75   30.0   26.0     1,176   517   11.75   30.0   26.0     1,176   517   11.75   30.0   20.0     1,176   517   11.75   30.0     1,176   517   11.75   30.0     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   12.3     1,177   517   517     1,177	1.100 512 11.90 1.142 514 5.89 1.1252 477 10.36 1.218 495 13.15 1.226 495 13.15 1.226 495 13.15 1.227 486 6.79 1.175 486 6.79 1.175 486 6.79 1.274 477 7.76 1.274 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 477 7.76 1.278 486 10.71 1.270 477 7.63 1.271 477 7.63 1.272 486 6.77 1.273 486 6.77 1.274 495 6.66 1.271 417 7.63 1.272 495 6.66 1.271 1.272 1.273 486 6.77 1.274 495 6.77 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75 1.275 514 11.75		23.7 67.3 67.3 72.0 21.0 21.5 20.3 20.3 24.3 24.3 25.0 26.0 26.0 26.0 26.0 26.0 26.0	512 514 514 514 514 514 514 514 514 514 514	255 265 265 265 265 265 265 265
1.142       514       5.89       14.0       12.0         1.252       477       10.36       43.3       67.3         1.218       495       13.15       18.3       16.3         1.220       514       12.50       22.0       21.0         1.220       514       12.50       22.0       21.0         1.220       514       12.50       22.0       21.0         1.175       486       6.79       16.3       17.2         1.175       477       6.72       16.0       16.0         1.274       477       6.72       16.0       16.0         1.278       477       7.76       16.0       16.0         1.278       477       7.76       16.0       16.0         1.278       477       7.76       16.0       16.0         1.278       477       7.76       16.3       16.0         1.279       512       8.67       18.3       20.3         1.280       486       10.71       23.7       24.3         1.281       10.71       25.3       24.3         1.280       486       11.73       16.0         1.281       11	1.142 514 5.89 1.252 477 10.36 1.120 512 17.58 1.366 495 13.15 1.266 495 13.15 1.270 514 12.50 1.178 496 6.79 1.178 486 6.79 1.274 477 7.76 1.274 477 7.76 1.274 477 7.76 1.274 477 7.76 1.278 477 7.76 1.278 477 7.76 1.378 477 7.76 1.378 477 7.76 1.378 477 7.76 1.378 477 7.76 1.378 477 7.76 1.378 486 10.71 1.370 486 6.77 1.246 495 6.69 1.170 486 6.77 1.245 514 11.75 1.245 514 11.75 1.245 514 11.75 1.245 514 11.75 1.245 514 11.75 1.245 514 11.75 1.242 495 11.75 1.242 495 11.75 1.342 514 11.75 1.343 514 11.75 1.343 514 11.75 1.345 514 11.75 1.345 514 11.75 1.345 514 11.75		12.0 67.3 16.3 16.3 17.3 19.0 19.0 20.3 20.3 19.0 18.0 15.0	514 514 514 514 514 514 514 514	0.50 0.50
1.252     477     10.36     43.3     67.3       1.120     512     7.58     25.0     24.3       1.120     512     7.58     25.0     24.3       1.266     495     13.15     18.3     16.3       1.220     514     12.50     22.0     21.0       1.136     486     6.79     16.3     17.3       1.137     486     7.45     17.0     19.0       1.262     514     12.49     17.2     16.0       1.262     514     12.49     17.2     16.0       1.274     477     7.76     16.7     20.0       1.278     477     7.76     16.7     20.0       1.278     477     7.76     16.7     20.0       1.152     514     11.75     30.0     26.0       1.152     514     11.75     30.0     26.0       1.152     514     11.75     30.0     26.0       1.107     512     16.3     11.7       1.246     495     6.69     19.7     16.0       1.170     512     17.3     11.3       1.246     495     6.69     19.7     16.0       1.170     495     6.66     18.7 <td>1.252 477 10.36 1.218 495 13.15 1.220 512 7.58 1.220 514 12.50 1.781 506 11.04 1.186 486 6.79 1.274 477 6.72 1.274 574 11.62 1.274 574 11.62 1.278 477 7.76 1.278 477 7.76 1.278 504 12.21 1.152 514 11.75 1.152 514 11.75 1.254 504 12.51 1.153 486 10.71 1.165 495 6.69 1.268 495 6.66 1.170 486 6.77 1.186 486 6.77 1.187 512 11.59 1.245 514 7.63 1.178 486 6.77 1.187 514 7.63 1.187 514 7.63 1.187 514 11.75 1.245 514 11.75 1.245 514 11.75 1.245 514 11.75 1.242 495 11.56 1.134 514 11.75 1.342 514 11.75 1.343 514 12.83</td> <td></td> <td>67.3 24.3 16.0 19.0 19.0 19.0 19.0 19.0 19.0 19.0 19</td> <td>695 695 514 514 677 677</td> <td>6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5</td>	1.252 477 10.36 1.218 495 13.15 1.220 512 7.58 1.220 514 12.50 1.781 506 11.04 1.186 486 6.79 1.274 477 6.72 1.274 574 11.62 1.274 574 11.62 1.278 477 7.76 1.278 477 7.76 1.278 504 12.21 1.152 514 11.75 1.152 514 11.75 1.254 504 12.51 1.153 486 10.71 1.165 495 6.69 1.268 495 6.66 1.170 486 6.77 1.186 486 6.77 1.187 512 11.59 1.245 514 7.63 1.178 486 6.77 1.187 514 7.63 1.187 514 7.63 1.187 514 11.75 1.245 514 11.75 1.245 514 11.75 1.245 514 11.75 1.242 495 11.56 1.134 514 11.75 1.342 514 11.75 1.343 514 12.83		67.3 24.3 16.0 19.0 19.0 19.0 19.0 19.0 19.0 19.0 19	695 695 514 514 677 677	6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
1.120       512       7.58       25.0       24.3         1.218       495       13.15       18.3       16.3         1.220       514       12.50       22.0       21.0         1.781       506       11.04       19.5       21.5         1.176       486       7.45       17.0       19.0         1.176       477       6.72       16.0       16.0         1.274       477       7.76       19.3       20.3         1.278       477       7.76       19.3       20.3         1.152       514       11.75       30.0       26.0         1.278       477       7.76       19.3       20.3         1.152       514       11.75       30.0       26.0         1.287       486       10.71       25.7       24.3         1.145       486       10.71       25.7       24.3         1.145       486       10.71       25.7       24.3         1.145       486       10.77       12.3       15.7         1.145       486       10.77       12.3       12.3         1.107       514       12.21       17.0       16.0	1.120		24.3 24.3 26.0 16.0 16.0 16.0 16.0 16.0 16.0 16.0 1	514 695 514 514 514 514 514 514 514 514 514 514	0.50 0.50
1.218       495       13.15       18.3       16.3         1.220       514       12.50       22.0       21.0         1.781       506       11.04       19.5       21.0         1.784       486       6.79       16.0       16.0         1.274       477       6.72       16.0       16.0         1.274       477       6.72       16.0       16.0         1.274       477       6.72       16.0       16.0         1.274       477       7.76       19.3       20.0         1.278       477       7.76       19.3       20.0         1.279       477       7.76       19.3       20.0         1.145       486       10.71       25.7       24.3         1.145       486       10.71       25.7       24.3         1.145       486       10.71       25.7       24.3         1.167       512       8.67       18.3       22.0         1.167       512       7.63       18.3       22.0         1.107       512       7.63       18.3       22.0         1.107       512       7.58       25.0       24.3      <	1.218       495       13.15         1.366       495       13.15         1.781       806       11.04         1.175       486       7.45         1.176       486       7.45         1.274       477       6.79         1.262       814       12.49         1.274       814       12.49         1.278       477       7.76         1.378       477       7.76         1.378       477       7.76         1.379       814       11.75         1.350       477       7.63         1.351       486       10.71         1.367       806       11.27         1.350       477       7.63         1.351       486       10.71         1.367       814       1.23         1.367       814       7.63         1.178       486       6.77         1.178       486       6.77         1.178       486       6.77         1.145       814       7.63         1.147       814       7.63         1.145       814       7.63         1.145       814		16.3 16.3 17.3 19.0 19.0 19.0 20.3 20.3 24.3 15.0 16.0	514 514 514 514 515 514 515 515 515 515	650 650 650 650 650 650 650 650 650 650
1366   495   13.15   18.3   16.3   17.20   17.81   12.50   22.0   21.0   17.81   12.50   22.0   21.0   17.81   17.81   18.3   16.3   17.3	1366     495     13.15       1.220     514     12.50       1.781     506     11.04       1.186     486     7.45       1.274     477     6.72       1.262     514     12.49       1.274     477     6.72       1.278     477     7.76       1.278     477     7.76       1.278     477     7.76       1.278     477     7.76       1.274     504     11.75       1.274     486     10.71       1.357     495     6.69       1.246     495     6.66       1.246     495     6.66       1.377     7.63       1.268     495     6.66       1.170     486     6.77       1.245     495     6.66       1.178     486     6.77       1.245     514     7.63       1.147     514     7.63       1.147     514     7.63       1.147     514     7.63       1.147     514     7.63       1.148     514     7.63       1.145     514     7.63       1.145     514     7.63       1.145     514     7.63		16.3 21.0 21.5 17.3 16.0 16.0 20.7 20.3 24.3 15.7	22 44 25 25 25 25 25 25 25 25 25 25 25 25 25	650 650 1550 1550 1550 1550 1550 1550
1,220       514       12.50       22.0       21.5         1,781       506       11.04       19.5       21.5         1,135       486       6.79       16.3       17.3         1,274       476       6.72       16.0       16.0         1,224       514       11.62       20.0       19.2         1,234       477       7.76       16.0       19.2         1,278       477       7.76       16.0       19.2         1,278       477       7.76       19.3       20.3         1,278       477       7.76       19.3       20.3         1,278       477       7.76       19.3       20.3         1,284       477       7.76       19.3       20.3         1,297       504       11.77       20.3       12.3         1,145       486       10.71       25.7       24.3         1,175       506       11.27       12.3       15.7         1,280       477       7.63       18.3       22.0         1,170       514       12.21       17.0       16.3         1,170       486       6.77       16.3       17.3	1.220     \$14     12.50       1.781     \$06     11.04       1.175     486     6.79       1.274     477     6.72       1.262     \$14     11.62       1.274     477     6.72       1.278     477     7.76       1.278     477     7.76       1.278     477     7.76       1.274     \$14     11.75       1.152     \$14     11.75       1.246     \$486     10.71       1.246     \$495     \$6.66       1.246     \$495     \$6.66       1.246     \$495     \$6.66       1.170     \$14     7.63       1.248     \$495     \$6.66       1.178     \$486     \$6.77       1.178     \$486     \$6.77       1.178     \$486     \$6.77       1.245     \$14     7.63       1.145     \$14     7.63       1.145     \$14     7.63       1.145     \$14     7.63       1.145     \$14     7.63       1.145     \$14     7.63       1.145     \$14     7.63       1.145     \$14     7.63       1.145     \$14     7.76       1.134 </td <td></td> <td>21.0 21.5 17.3 16.0 16.0 20.7 20.3 26.0 12.3 15.7</td> <td>215 215 216 217 217 217 217 217 217 217 217 217 217</td> <td>1650 1550 1550 1550 1550 1550 1550 1550</td>		21.0 21.5 17.3 16.0 16.0 20.7 20.3 26.0 12.3 15.7	215 215 216 217 217 217 217 217 217 217 217 217 217	1650 1550 1550 1550 1550 1550 1550 1550
1.781       506       11.04       19.5       21.5         1.156       486       6.79       16.3       17.3         1.174       477       475       16.0       16.0         1.262       514       11.62       20.0       19.2         1.274       477       7.76       16.0       19.2         1.278       477       7.76       16.0       19.3         1.152       514       11.75       30.0       20.3         1.152       514       11.75       30.0       20.3         1.152       514       11.75       30.0       26.0         1.152       514       11.75       30.0       26.0         1.152       514       11.75       30.0       26.0         1.145       486       10.71       25.7       24.3         1.175       486       10.71       25.7       24.3         1.175       506       11.70       18.3       22.0         1.176       486       6.69       19.7       16.3         1.246       495       6.66       18.7       21.7         1.268       495       6.66       18.7       17.3	1.781     506     11.04       1.186     486     6.79       1.174     477     6.72       1.262     514     11.24       1.244     514     11.62       1.278     477     7.76       1.278     477     7.76       1.152     514     11.75       1.152     514     11.75       1.152     514     11.75       1.152     514     11.75       1.145     486     10.71       1.176     506     11.27       1.236     477     7.63       1.246     495     6.66       1.178     486     6.77       1.178     486     6.77       1.178     486     6.77       1.178     514     7.63       1.145     514     7.63       1.145     514     7.63       1.145     514     7.63       1.145     514     7.63       1.145     514     7.63       1.145     514     7.63       1.145     514     7.63       1.145     514     7.76       1.134     514     7.76       1.134     514     7.76       1.134		21.5 17.3 18.0 18.0 20.3 20.3 26.0 18.0 15.7	514 514 514 515	0001 1550 1550 1550 1600 1600 1550 1550
1.186 486 6.79 16.3 17.3 17.3 17.3 17.3 17.4 477 6.72 16.0 16.0 16.0 12.4 51.4 17.6 5.72 16.0 16.0 16.0 15.4 51.4 17.6 5.72 16.0 16.0 16.0 15.3 17.3 17.3 17.3 17.3 17.3 17.3 17.3 17	1.136 486 6.79 1.175 486 7.45 1.274 477 6.72 1.244 514 11.62 1.378 477 7.76 1.378 477 7.76 1.152 514 11.75 1.997 512 8.67 1.145 486 11.27 1.145 486 7.63 1.246 495 6.69 1.246 495 6.69 1.170 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 514 7.63 1.179 514 11.75 1.145 514 11.75 1.134 514 11.75 1.342 495 11.56 1.343 514 12.83		17.3 16.0 16.8 16.8 26.0 26.0 18.0 12.3 15.7	514 477 514 512	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1.175       486       7.45       17.0       19.0         1.262       514       12.49       17.2       16.0       16.0         1.264       514       11.62       20.0       19.2       16.0       16.0         1.278       477       7.76       16.7       20.7       19.3       20.3       17.2       16.8       19.2       19.3       19.3       20.3       19.3	1.175 486 7.45 1.274 477 6.72 1.244 514 12.49 1.378 477 7.76 1.378 477 7.76 1.152 514 11.75 1.997 512 8.67 1.245 504 12.51 1.145 486 10.71 1.1590 477 7.63 1.236 495 6.66 1.246 495 6.66 1.246 495 6.77 1.248 697 1.178 486 6.77 1.245 514 7.63 1.179 486 6.77 1.245 514 1.75 1.245 514 1.75 1.245 514 1.75 1.245 514 1.75 1.245 514 1.75 1.347 514 1.75 1.342 495 11.36 1.342 514 1.23		19.0 16.8 16.8 20.7 20.3 18.0 12.3 15.7	514 477 514 512	1550 1550 1550 1550 1550
1.274     477     6.72     16.0     16.0       1.262     514     12.49     17.2     16.8       1.244     514     11.62     20.0     19.2       1.278     477     7.76     19.3     20.3       1.152     514     11.75     30.0     20.3       1.152     514     11.75     30.0     20.3       1.294     504     12.51     17.3     12.3       1.145     486     10.71     25.7     24.3       1.145     486     10.71     25.7     24.3       1.145     486     10.71     25.7     24.3       1.256     486     11.27     11.3     15.7       1.246     495     6.69     18.7     24.3       1.246     495     6.66     18.7     24.3       1.246     495     6.96     14.7     16.3       1.178     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.245     514     17.63     30.0     26.0       1.147     514     17.63     30.0     26.0       1.147     514<	1.274 477 6.72 1.262 514 12.49 1.244 514 11.62 1.378 477 7.76 1.152 514 11.75 1.1997 512 8.67 1.224 504 12.51 1.145 486 10.71 1.776 506 11.27 1.357 495 6.69 1.357 495 6.69 1.357 495 6.69 1.246 495 6.66 1.367 514 12.21 1.248 495 6.66 1.349 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 514 11.75 1.245 514 7.63 1.147 514 11.75 1.242 495 11.56 1.342 514 11.75 1.342 514 11.75 1.343 514 11.75		16.0 16.8 20.7 20.3 20.3 12.0 12.3 15.7	514 477 512 512	1550 1600 1550 1550 1550
1.262     514     12.49     17.2     16.8       1.244     514     11.62     20.0     19.2       1.278     477     7.76     19.3     20.3       1.152     514     11.75     30.0     26.0       1.997     512     8.67     18.3     26.0       1.284     504     12.51     17.3     12.3       1.145     506     11.27     24.3     15.7       1.37     495     6.69     19.7     16.0       1.36     495     6.69     19.7     16.0       1.26     495     6.69     19.7     16.0       1.26     495     6.69     19.7     16.0       1.27     7.53     18.3     22.0       1.170     486     6.77     16.3     17.3       1.26     495     6.96     14.7     16.0       1.178     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.245     514     17.5     30.0     26.0       1.147     514     17.5     30.0     26.0       1.134     514     17.76     <	1.262 514 12.49 1.244 514 11.62 1.278 477 7.76 1.152 514 11.75 1.997 514 11.75 1.997 514 11.75 1.244 504 12.51 1.145 486 10.71 1.76 506 11.27 1.357 495 6.69 1.107 514 12.21 1.268 495 6.66 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 486 6.77 1.178 514 11.75 1.145 514 11.75 1.145 514 11.75 1.145 514 11.75 1.134 514 11.75 1.367 11.36		16.8 20.7 20.3 26.0 12.3 12.3 15.7	\$14 477 512 512	1600 1600 1550 1550
1.244     514     11.62     20.0     19.2       1.378     477     7.76     16.7     20.7       1.152     514     11.75     30.0     26.0       1.997     514     11.75     30.0     26.0       1.24     504     12.51     17.3     12.3       1.124     506     11.27     12.3     14.3       1.256     486     10.71     25.7     24.3       1.257     495     6.69     19.7     16.0       1.250     477     7.63     18.3     22.0       1.107     514     12.21     17.0     16.3       1.268     495     6.66     18.7     21.7       1.268     495     6.66     18.7     21.7       1.170     486     6.77     16.3     17.3       1.171     514     7.63     30.0     26.0       1.172     514     7.63     30.0     26.0       1.173     514     17.75     30.0     26.0       1.147     514     17.75     30.0     26.0       1.134     514     17.76     30.0     26.0       1.134     514     17.76     12.7     16.3       1.134     514 </td <td>1.244 514 11.62 1.378 477 7.76 1.278 477 7.76 1.152 514 11.75 1.224 504 12.51 1.145 486 10.71 1.776 506 11.27 1.357 495 6.69 1.236 486 7.63 1.107 512 7.58 1.246 495 6.66 1.367 514 12.21 1.248 495 6.96 1.178 486 6.77 1.245 514 7.63 1.245 514 7.63 1.245 514 11.75 1.245 514 11.75 1.242 495 11.56 1.344 2.83 1.358 11.35</td> <td></td> <td>19.2 20.7 20.3 26.0 18.0 12.3 15.7 16.0</td> <td>514 512</td> <td>1600 1550 1550 1550</td>	1.244 514 11.62 1.378 477 7.76 1.278 477 7.76 1.152 514 11.75 1.224 504 12.51 1.145 486 10.71 1.776 506 11.27 1.357 495 6.69 1.236 486 7.63 1.107 512 7.58 1.246 495 6.66 1.367 514 12.21 1.248 495 6.96 1.178 486 6.77 1.245 514 7.63 1.245 514 7.63 1.245 514 11.75 1.245 514 11.75 1.242 495 11.56 1.344 2.83 1.358 11.35		19.2 20.7 20.3 26.0 18.0 12.3 15.7 16.0	514 512	1600 1550 1550 1550
1.378     477     7.76     16.7     20.3       1.278     477     7.76     19.3     20.3       1.152     514     11.75     30.0     26.0       1.224     506     12.51     17.3     12.3       1.145     486     10.71     25.7     24.3       1.76     506     11.27     12.3     14.3       1.357     495     6.69     19.7     16.0       1.236     486     7.63     18.3     22.0       1.107     514     7.63     18.3     22.0       1.246     495     6.66     18.7     21.7       1.268     495     6.66     18.7     21.7       1.268     495     6.96     14.7     16.3       1.170     486     6.77     16.3     17.3       1.171     514     7.63     30.0     26.0       1.175     514     17.5     30.0     26.0       1.147     514     17.75     30.0     26.0       1.134     514     17.76     10.3     20.0       1.134     514     17.76     10.3     20.0       1.134     514     17.76     20.3     20.0       1.135     486	1.378     477     7.76       1.278     477     7.76       1.152     514     11.75       1.224     504     12.51       1.145     486     10.71       1.776     506     11.27       1.357     495     6.69       1.236     477     7.63       1.246     495     6.66       1.367     514     7.58       1.246     495     6.96       1.170     486     6.77       1.178     486     6.77       1.245     514     7.63       1.245     514     7.63       1.245     514     7.63       1.145     514     11.75       1.134     514     11.75       1.134     514     11.75       1.134     514     12.83       1.253     486     11.75       1.253     486     11.75       1.253     486     11.75		20.7 20.3 26.0 18.0 12.3 24.3 15.7	514	1550 1550 1550 1550
1.278     477     7.76     19.3     20.3       1.152     514     11.75     30.0     26.0       1.224     504     12.51     17.3     18.3       1.145     486     10.71     25.7     24.3       1.776     506     11.27     12.3     15.7       1.357     495     6.69     19.7     16.0       1.236     477     7.63     18.3     23.7       1.50     477     7.63     18.3     23.7       1.246     495     6.66     18.7     21.7       1.246     495     6.66     18.7     21.7       1.367     514     12.21     17.0     16.3       1.170     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.179     486     6.77     16.3     17.3       1.178     514     7.63     30.0     26.0       1.145     514     11.75     30.0     26.0       1.134     514     17.6     30.0     26.0       1.134     514	1.278 477 7.76 1.152 514 11.75 1.997 512 8.67 1.224 504 11.21 1.145 486 10.71 1.357 495 6.69 1.236 486 7.63 1.246 495 6.66 1.1367 512 7.58 1.246 495 6.66 1.170 486 6.77 1.245 495 11.75 1.245 514 7.63 1.145 514 11.75 1.145 514 11.75 1.134 514 11.75 1.342 495 11.56 1.343 514 12.83		20.3 26.0 12.3 24.3 15.7 16.0	514	1550
1.152     514     11.75     30.0     26.0       1.224     504     12.51     17.3     18.0       1.145     486     10.71     25.7     24.3       1.176     506     11.27     12.3     18.0       1.357     486     10.71     25.7     24.3       1.236     486     7.63     18.3     23.7       1.50     477     7.63     18.3     22.0       1.107     512     7.58     25.0     24.3       1.246     495     6.66     18.7     21.7       1.25     514     12.21     17.0     16.3       1.170     486     6.77     16.3     17.3       1.171     486     6.77     16.3     17.3       1.173     486     6.77     16.3     17.3       1.174     514     7.63     30.0     26.0       1.173     514     7.63     30.0     26.0       1.145     514     11.75     30.0     26.0       1.145     514     11.75     30.0     26.0       1.134     514     17.6     30.0     26.0       1.134     514     17.76     12.7     16.3       1.242     495	1.152 514 11.75 1.997 512 8.67 1.224 504 12.51 1.145 486 10.71 1.776 506 11.27 1.357 495 6.69 1.236 486 7.63 1.107 512 7.58 1.107 512 7.58 1.246 495 6.66 1.170 486 6.77 1.245 514 7.63 1.171 514 7.63 1.172 514 11.75 1.242 495 11.75 1.242 495 11.75 1.342 495 11.35 1.342 514 12.83 1.353 486 11.75		26.0 18.0 12.3 24.3 15.7	514 512	1550
1.997     512     8.67     18.3     18.0       1.224     504     12.51     17.3     12.3       1.145     486     10.71     25.7     24.3       1.37     486     10.71     25.7     24.3       1.236     486     7.63     18.3     23.7       1.50     477     7.63     18.3     22.0       1.107     512     7.58     25.0     24.3       1.246     495     6.66     18.7     21.7       1.367     514     12.21     17.0     16.3       1.178     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.178     514     7.63     30.0     26.0       1.145     514     11.75     30.0     26.0       1.145     514     11.75     30.0     26.0       1.134     514     17.6     30.0     26.0       1.134     514     17.6     20.3     16.0       1.251     514	1.997 512 8.67 1.224 504 12.51 1.145 486 10.71 1.357 495 6.69 1.236 486 7.63 1.236 477 7.63 1.107 512 7.58 1.107 512 7.58 1.107 512 7.58 1.136 495 6.66 1.170 486 6.77 1.245 514 7.63 1.171 514 7.63 1.172 514 1.75 1.242 495 11.75 1.242 495 11.75 1.342 514 12.83 1.353 486 11.75		18.0 12.3 24.3 15.7 16.0	512	1550
1.224     504     12.51     17.3     12.3       1.145     486     10.71     25.7     24.3       1.776     506     11.27     12.3     15.7       1.236     485     6.69     19.7     16.0       1.236     476     7.63     18.3     23.7       1.590     477     7.63     18.3     22.0       1.107     512     7.58     25.0     24.3       1.246     495     6.66     18.7     21.7       1.268     495     6.96     14.7     16.0       1.178     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.178     514     7.63     30.0     26.0       1.145     514     7.63     30.0     26.0       1.147     514     11.75     30.0     26.0       1.147     514     11.75     30.0     26.0       1.134     514     17.63     30.0     26.0       1.134     514     17.75     30.0     26.0       1.134     514     17.75     30.0     26.0       1.134     514     17.76     12.7     16.3       1.235     486 <td>1.224 504 12.51 1.145 486 10.71 1.376 506 11.27 1.337 495 6.69 1.590 477 7.63 1.107 512 7.58 1.246 495 6.66 1.367 514 12.21 1.268 495 6.96 1.170 486 6.77 1.171 486 6.77 1.172 514 7.63 1.147 514 7.63 1.145 514 17.5 1.145 514 17.5 1.145 514 17.5 1.145 514 17.5 1.362 514 12.83 1.362 514 12.83</td> <td></td> <td>12.3 24.3 15.7 16.0</td> <td></td> <td>0371</td>	1.224 504 12.51 1.145 486 10.71 1.376 506 11.27 1.337 495 6.69 1.590 477 7.63 1.107 512 7.58 1.246 495 6.66 1.367 514 12.21 1.268 495 6.96 1.170 486 6.77 1.171 486 6.77 1.172 514 7.63 1.147 514 7.63 1.145 514 17.5 1.145 514 17.5 1.145 514 17.5 1.145 514 17.5 1.362 514 12.83 1.362 514 12.83		12.3 24.3 15.7 16.0		0371
1.145     486     10.71     25.7     24.3       1.776     506     11.27     12.3     15.7       1.236     486     19.7     16.0       1.236     486     7.63     18.3     22.0       1.590     477     7.63     18.3     22.0       1.107     512     7.58     25.0     24.3       1.246     495     6.66     18.7     21.7       1.268     495     6.96     14.7     16.3       1.170     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.245     514     7.63     30.0     26.0       1.147     514     11.75     30.0     26.0       1.147     514     11.75     30.0     26.0       1.147     514     11.75     30.0     26.0       1.147     514     11.75     30.0     26.0       1.134     514     11.75     30.0     26.0       1.134     514     17.76     12.7     16.3       1.134     514     17.76     12.7     16.3       1.253     486     11.75     20.0     21.7       1.23     20.0     21.7 </td <td>1.145 486 10.71 1.776 506 11.27 1.236 486 7.63 1.590 477 7.63 1.107 512 7.58 1.246 495 6.66 1.367 514 12.21 1.178 486 6.77 1.178 486 6.77 1.178 514 7.63 1.245 514 7.63 1.147 514 175 1.242 495 11.75 1.362 514 1.75 1.363 514 7.63</td> <td></td> <td>24.3 15.7 16.0</td> <td>495</td> <td>1650</td>	1.145 486 10.71 1.776 506 11.27 1.236 486 7.63 1.590 477 7.63 1.107 512 7.58 1.246 495 6.66 1.367 514 12.21 1.178 486 6.77 1.178 486 6.77 1.178 514 7.63 1.245 514 7.63 1.147 514 175 1.242 495 11.75 1.362 514 1.75 1.363 514 7.63		24.3 15.7 16.0	495	1650
1.776     506     11.27     12.3     15.7       1.236     486     7.63     18.3     23.7       1.590     477     7.63     18.3     22.0       1.107     512     7.58     25.0     24.3       1.246     495     6.66     18.7     21.7       1.268     495     6.96     14.7     16.3       1.170     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.245     514     7.63     30.0     26.0       1.147     514     11.75     30.0     26.0       1.147     514     11.75     30.0     26.0       1.147     514     11.75     30.0     26.0       1.134     514     11.75     30.0     26.0       1.134     514     11.75     30.0     26.0       1.134     514     17.6     30.0     26.0       1.134     514     17.76     12.7     16.3       1.253     514     17.76     12.7     16.3       1.135     514     17.76     12.7     16.3       1.253     514 <td>1.776 506 11.27 1.337 495 6.69 1.236 486 7.63 1.107 512 7.58 1.246 495 6.66 1.367 514 12.21 1.268 495 6.96 1.170 486 6.77 1.178 486 6.77 1.245 514 7.63 1.245 514 11.75 1.242 495 11.75 1.342 495 11.56 1.343 514 7.63</td> <td></td> <td>15.7 16.0</td> <td>486</td> <td>1550</td>	1.776 506 11.27 1.337 495 6.69 1.236 486 7.63 1.107 512 7.58 1.246 495 6.66 1.367 514 12.21 1.268 495 6.96 1.170 486 6.77 1.178 486 6.77 1.245 514 7.63 1.245 514 11.75 1.242 495 11.75 1.342 495 11.56 1.343 514 7.63		15.7 16.0	486	1550
1.357     495     6.69     19.7     16.0       1.256     486     7.63     18.3     23.7       1.590     477     7.63     18.3     22.0       1.107     512     18.7     21.7       1.266     495     6.66     18.7     21.7       1.268     495     6.96     14.7     16.3       1.170     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.245     514     7.63     30.0     26.0       1.147     514     11.75     30.0     26.0       1.134     514     11.75     30.0     26.0       1.134     514     11.75     30.0     26.0       1.134     514     17.76     12.7     16.3       1.135     514     17.75     30.0     26.0       1.134     514     17.76     12.7     16.3       1.253     486     11.75     20.0     21.7       1.253     486     11.75     20.0     21.7       1.253     486     11.75     20.0     21.7	1.357 495 6.69 1.236 486 7.63 1.1890 477 7.63 1.107 512 7.58 1.246 495 6.66 1.367 514 12.21 1.268 495 6.96 1.178 486 6.77 1.245 514 7.63 1.245 514 11.75 1.245 514 11.75 1.242 495 11.56 1.362 514 12.83 1.253 486 11.75		16.0		1600
1.236     486     7.63     18.3     23.7       1.590     477     7.63     18.3     22.0       1.107     512     7.58     25.0     24.3       1.246     495     6.66     18.7     21.7       1.268     495     6.96     14.7     16.3       1.170     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.245     514     7.63     30.0     26.0       1.147     514     11.75     30.0     26.0       1.145     514     11.75     30.0     26.0       1.134     514     11.75     30.0     26.0       1.134     514     11.75     30.0     26.0       1.134     514     11.75     30.3     20.0       1.135     514     11.75     30.0     26.0       1.134     514     11.75     30.0     26.0       1.135     514     11.75     30.0     20.0       1.235     486     11.75     20.0     21.7	1.236 486 7.63 1.590 477 7.63 1.107 512 7.58 1.246 495 6.66 1.367 514 12.21 1.268 495 6.96 1.170 486 6.77 1.245 514 7.63 1.245 514 11.75 1.242 495 11.56 1.362 514 12.83 1.253 486 11.75			495	1600
1.590     477     7.63     18.3     22.0       1.246     495     6.66     18.7     21.7       1.246     495     6.66     18.7     21.7       1.268     495     6.96     14.7     16.3       1.170     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.245     514     7.63     30.0     26.0       1.251     514     11.75     30.0     26.0       1.147     514     11.75     30.0     26.0       1.145     514     11.75     30.0     26.0       1.134     514     11.75     30.0     26.0       1.134     514     17.6     12.7     16.3       1.252     514     17.8     20.3     20.0       1.134     514     17.76     12.7     16.3       1.253     486     11.75     20.0     21.7       1.253     486     11.75     20.0     21.7	1.590 477 7.63 1.107 512 7.58 1.246 495 6.66 1.367 514 12.21 1.268 495 6.96 1.170 486 6.77 1.245 514 7.63 1.251 514 11.75 1.242 495 11.56 1.342 514 12.53 1.253 486 11.75		23.7		1550
1.107     512     7.58     25.0     24.3       1.246     495     6.66     18.7     21.7       1.367     514     12.21     17.0     16.3       1.126     495     6.96     14.7     16.0       1.170     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.245     514     7.63     30.0     26.0       1.147     514     11.75     30.0     26.0       1.145     514     11.75     30.0     26.0       1.134     514     11.56     20.8     16.0       1.134     514     7.76     12.7     16.3       1.253     486     11.75     20.0     21.7	1.107 512 7.58 1.246 495 6.66 1.367 514 12.21 1.268 495 6.96 1.170 486 6.77 1.245 514 7.63 1.251 514 7.63 1.242 495 11.56 1.342 514 17.5 1.342 514 12.83 1.253 486 11.75		22.0		1550
1.246     495     6.66     18.7     21.7       1.367     514     12.21     17.0     16.3       1.268     495     6.96     14.7     16.0       1.170     486     6.77     16.3     17.3       1.178     486     6.77     16.3     17.3       1.245     514     7.63     30.0     26.0       1.147     514     11.75     30.0     26.0       1.145     514     11.75     30.0     26.0       1.134     514     11.75     30.0     26.0       1.134     514     7.76     12.7     16.3       1.134     514     1.76     12.7     16.3       1.253     486     11.75     20.0     21.7       1.253     486     11.75     20.0     21.7	1.246 495 6.66 1.367 514 12.21 1.268 495 6.96 1.170 486 6.77 1.178 486 6.77 1.245 514 7.63 1.147 514 11.75 1.145 514 11.75 1.242 495 11.56 1.362 514 12.83 1.253 486 11.75		24.3		1650
1.367     514     12.21     17.0     16.3       1.268     495     6.96     14.7     16.0       1.178     486     6.77     16.3     17.3       1.245     514     7.63     30.0     26.0       1.251     514     7.63     30.0     26.0       1.147     514     11.75     30.0     26.0       1.145     514     11.75     30.0     26.0       1.134     514     11.75     30.0     26.0       1.134     514     7.76     12.7     16.3       1.136     514     7.76     12.7     16.3       1.23     486     11.75     20.3     20.0       1.23     486     11.75     20.0     21.7	1.367 514 12.21 1.268 495 6.96 1.170 486 6.77 1.178 486 6.77 1.245 514 7.63 1.147 514 11.75 1.145 514 11.75 1.242 495 11.56 1.362 514 12.83 1.253 486 11.75		21.7		1550
1.268 495 6.96 14.7 16.0 1.170 486 6.77 16.3 17.3 1.18 486 6.77 16.3 17.3 1.245 514 7.63 30.0 26.0 1.147 514 11.75 30.0 26.0 1.142 495 11.56 20.8 16.0 1.134 514 7.76 12.7 16.3 1.362 514 12.83 20.3 20.0 1.253 486 11.75 20.0 21.7	1.268 495 6.96 1.170 486 6.77 1.178 486 6.77 1.245 514 7.63 1.251 514 7.63 1.147 514 11.75 1.242 495 11.56 1.362 514 12.83 1.253 486 11.75		16.3		1600
1.170 486 6.77 16.3 17.3 17.3 17.4 16.3 17.3 17.3 17.4 16.3 17.3 17.4 16.3 17.3 17.4 16.3 17.3 17.4 16.3 17.3 17.4 17.6 17.4 17.6 17.6 17.4 17.6 17.6 17.6 17.6 17.6 17.6 17.6 17.7 16.3 17.6 17.7 16.3 17.6 17.7 16.3 17.6 17.7 16.3 17.6 17.7 16.3 17.5 17.6 17.7 16.3 17.5 17.6 17.7 16.3 17.5 17.7 16.3 17.5 17.7 16.3 17.5 17.7 16.3 17.5 17.7 16.3 17.5 17.7 16.3 17.5 17.7 16.3 1	1.170 486 6.77 1.178 486 6.77 1.245 514 7.63 1.251 514 7.63 1.147 514 11.75 1.145 514 11.75 1.242 495 11.56 1.134 514 7.76 1.253 486 11.75		16.0		1550
1.178 486 6.77 16.3 17.3 1.245 514 7.63 30.0 26.0 1.251 514 7.63 30.0 26.0 1.147 514 11.75 30.0 26.0 1.145 514 11.75 30.0 26.0 1.242 495 11.56 20.8 16.0 1.134 514 7.76 12.7 16.3 1.362 514 12.83 20.3 20.0	1.178 486 6.77 1.245 514 7.63 1.251 514 7.63 1.147 514 11.75 1.145 514 11.75 1.242 495 11.56 1.134 514 7.76 1.362 514 12.83 1.253 486 11.75		17.3		1550
1.245 514 7.63 30.0 26.0 1.251 514 7.63 30.0 26.0 1.147 514 11.75 30.0 26.0 1.145 514 11.75 30.0 26.0 1.242 495 11.56 20.8 16.0 1.134 514 7.76 12.7 16.3 1.362 514 12.83 20.3 20.0	1.245 514 7.63 1.251 514 7.63 1.147 514 11.75 1.145 514 11.75 1.242 495 11.56 1.134 514 7.76 1.362 514 12.83 1.253 486 11.75		17.3		1550
1.251     514     7.63     30.0     26.0       1.147     514     11.75     30.0     26.0       1.145     514     11.75     30.0     26.0       1.242     495     11.56     20.8     16.0       1.134     514     7.76     12.7     16.3       1.362     514     12.83     20.3     20.0       1.253     486     11.75     20.0     21.7	1.251 514 7.63 1.147 514 11.75 1.145 514 11.75 1.242 495 11.56 1.134 514 7.76 1.362 514 12.83 1.253 486 11.75		26.0		1550
1.147 514 11.75 30.0 26.0 1.145 514 11.75 30.0 26.0 1.242 495 11.56 20.8 16.0 1.134 514 7.76 12.7 16.3 1.362 514 12.83 20.3 20.0 1.253 486 11.75 20.0 21.7	1.147 514 11.75 1.145 514 11.75 1.242 495 11.56 1.134 514 7.76 1.362 514 12.83 1.253 486 11.75		26.0		1550
1.145 514 11.75 30.0 26.0 1.242 495 11.56 20.8 16.0 1.134 514 7.76 12.7 16.3 1.362 514 12.83 20.3 20.0 1.253 486 11.75 20.0 21.7	1.145 514 11.75 1.242 495 11.56 1.134 514 7.76 1.362 514 12.83 1.253 486 11.75		26.0	514	1550
1.242 495 11.56 20.8 16.0 1.134 514 7.76 12.7 16.3 1.362 514 12.83 20.3 20.0 1.253 486 11.75 20.0 21.7	1.242     495     11.56       1.134     514     7.76       1.362     514     12.83       1.253     486     11.75		26.0	514	1550
1.134 514 7.76 12.7 16.3 1.362 514 12.83 20.3 20.0 1.253 486 11.75 20.0 21.7	1.134 514 7.76 1.362 514 12.83 1.253 486 11.75		16.0	477	1600
1.362 514 12.83 20.3 20.0 1.253 486 11.75 20.0 21.7	1.362 514 12.83 1.253 486 11.75		16.3		1550
1.253 486 11.75 20.0 21.7	1.253 486 11.75		20.0	514	1600
***			21.7	486	1550
1.152 495 10.17 16.3 19.0	20 A M 0091 1.152 495 10.17		19.0	495	1550

CSTA-ARL/MD JOINT EPFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602
DATABASE MODULE 3: MATERIALS PROPERTIES

AUS TEMP DEG FJ	1550 1550 1550 1550
_	7 6 7
CHARPY HARD [RC]	477 486 486 495
CHARPY TL [FT-LB]	18.7 15 20.3 16.3
CHARPY LT [FT-LB]	11.7 14.7 18.3 15.3
[MOM]	10.256 11.903 11.039 10.609
PLATE HARD (BRN)	477 486 495 477
ACT PLATE TH [IN]	2.014 1.578 1.256 1.228
ARL/MD ID	20 A M 00 93 20 A M 00 94 20 A M 00 95 20 A M 00 96

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PET FORMANCE OF ARMOR PLATE MATERIALS
PROJECTII R: 20 MM API\_T MAY

	CSTA-ARL BALLISTIC PROJECTIL DATABASE	CSTA-ARL/MD JOINT EFFORT PC BALLISTIC PEN FORMANCE OF AI PROJECTILE: 20 MM API-T M602 DATABASE MODULE 4: BALLIST	CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PENFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602 DATABASE MODULE 4: BALLISTIC PERFORMANCE	THE IMPROVOR PLATE M	/EMENT OF 1 Aterials Ce	THE	•	A = ACCEPTA $D = DEVELOF$ $P = PIRST A$ $P = PRIMARY$ $R = RETEST$	= ACCEPTANCE = DEVELOPMENT \( = PIRST ARTICLE \) \( = PRIMAR \) \( = RETEST \)	្ឌ	<u>a.</u> 2.	= PASS	
ARL/MD ID	TEST PURPOSE [A/D/PA]	SAMPLE PRIM/RET [P/R]	FIRING RECORD	PIRING DATE	FAIL FIRING RECORD	TEST (NUM)	PROJECTILE	OBL [DEG]	ACT PLATE TH [IN]	reo vel (pt/sec)	ACT VEL [FT/SEC]	PASS FAIL [P/F]	VEL DIPP  FT/SEC
20 A M 0001	· ·	<u>d</u>	90001603	10/24/90		SIX	20MMAPITM602	0	1.240	2169	2185	<u></u>	91
20 A M 0002	: <	, <u>a</u> ,	90001623	10/31/90		XIX	20MMAPITM602	•	1.749	2801	2926	۵,	125
20 A M 0003	: <b>&lt;</b>	, a.	90001637	11/05/90		XIS	20MMAPITM602	•	1.748	2801	2906	<b>9.</b>	105
20 A M 0004	<	به .	90001685	12/12/90		SIX	20MMAPITM602	•	1.176	2069	2054	· 24	- 15
20 A M 0005	<	<b>±</b>	90001686	12/12/90	90001402	XIX	20MMAPITM602	•	1.380	2375	2399	۵,	*
20 A M0006	<	æ	90001687	12/12/90	90001402	XIX	20MMAPITM602	•	1.384	2381	2403	۵,	Z
20 A M 0007	<	<u>م</u>	90001699	12/13/90		XIX	20MMAPITM602	•	1.963	304	3149	<u>م</u>	101
20 A M 0008	<	۵.	90001767	12/03/90		XIX	20MMAPITM602	•	1.755	2813	2899	۵,	2
20 A M 0009	<	۵.	90001785	12/12/90		XIS	20MMAPITM602	•	1.251	2186	2256	۵,	92
20 A M 0010	<	۵.	90001851	12/13/90		SIX	20MMAPITM602	•	1.177	2070	2019	œ.,	-51
20 A M 0011	<	۵.	90001852	12/13/90		SIX	20MMAPITM602	•	1.249	2183	2156	<b>1</b> 24	27
20AM0012	<	×	90001853	12/13/90	90001689	SIX	20MMAPITM602	•	1.088	1879	1995	۵,	911
20 A M 0013	<	<b>~</b>	90001854	12/13/90	90001689	SIX	20MMAPITM602	0	1.094	1890	1950	A., :	3
20 A M 0014	< -	<b>24</b> 1	90001855	12/13/90	90001208	SIX	20MMAPITM602	0	1.096	1894	1920	<b>9.</b> (	<b>%</b>
20AM 0015	< ⋅	<b>24</b> 1	91000007	01/24/91		TEN	20MMAPITM602	•	1.387	2343	2254	<b>24</b> , f	<b>\$</b>
20 A M 00 16	< ⋅	a., g	91000045	16/11/10		XIX	20MMAPITM602	•	1.248	2140	2203	B., (	3 3
700MA02	< •	<b>×</b> :	91000126	01/24/91		XIX	ZOM MAPIT M602	<b>-</b>	1.171	2001	3061	2. f	56-
20 W 0018	< •	¥ 0	9100012/	02/04/91		X 10	20MMAPII M602	<b>-</b>	1.171	7007	22.15	L, A	- 21
000 M 000	< <		91000128	02/04/91		A12	20MMAPITM602	•	1.931	3051	2020	<b>.</b> A	70
204 M0021	< <	., A	91000148	02/04/91		XIX	20MMAPITM602	• •	1.131	1953	1953	. 4	3 =
20 A M 0022	: <b>&lt;</b>	. Α.	91000199	02/05/91		SIX	20MMAPITM602	•	1.353	2337	2422	۵.	• <b>58</b>
20 A M 0023	<	. <b>a.</b>	91000269	02/14/91		SIX	20MMAPITM602	•	1.266	2167	2243	<b>a</b>	92
20A M0024	<	۵,	91000326	03/27/91		SIX	20MMAPITM602	•	1.153	2031	2022	<b>~</b> .	<b>6</b>
20A M0025	< -	<b>e.</b> (	91000479	03/05/91		SIX	20MMAPITM602	•	1.254	2149	2210	<b>-</b> :	19
20 A M 0026	< ⋅	۵, ۵	91000480	03/05/91		XIX	20MMAPITM602	0 0	1.245	2135	2210	B., 6	27.
200 M 002	< <	<b>.</b> , p	91000380	03/13/91		¥16	20M MAPLI M602	•	1.337	78.14	2000	<b>.</b> , a	• :
20 A M 0029	<	۰ ۵.	91000640	04/12/91		FOUR	20MMAPITM602	•	1.237	2123	2186	. a.	63
20 A M 0030	<	۵,	91000641	04/12/91		SIX	20MMAPITM602	•	1.140	1961	1989	۵.	. 21
20AM0031	<	۵.	91000723	04/14/91		SIX	20MMAPITM602	•	1.759	2818	2909	۵.	5
20 A M 0032	<	<b>Q.</b> (	91000726	04/15/91		SIX	20MMAPITM602	0	1.250	2143	2223	<b>4</b> ,	2
20A M0033	< ⋅	۵., ۱	91000727	04/15/91		XIX	20MMAPITM602	•	1.381	2334	2401	<b>a.</b> 1	63
20 A M0034	< •	<b>.</b> 6	91000732	04/16/91		XIX	20M MAPI I M602	<b>-</b>	1.113	1922	2000	<b>.</b> . a	<b>1</b>
20 M M0036	< <	. A	91000403	05/21/91		XIX	20MMAPITM602	•	1.12	1921	2 2	. a.	
20 A M 0037	: <	, e.	91000810	05/31/91		XIS	20MMAPITM602	•	1.236	2121	2200	. <u>a.</u>	2
20A M0038	<	. <b>G</b> .,	91000823	05/31/91		FOUR	20MMAPITM602	•	1.970	3056	3178	<b>.</b>	122
20 A M 0039	<	۵.	91000825	06/02/91		SIX	20MMAPITM602	•	1.112	1921	1962	<b>.</b>	=
20 A M 0040	<	<u>a</u>	91000831	05/17/91		SIX	20MMAPITM602	•	1.256	2152	2064	<b>a.</b>	<b>23</b> -
20 A M 004 1	<	بم	91000998	16/90/90		XIX	20MMAPITM602	0	1.226	2106	2191	Δ,	<b>S</b>
20 A M 0042	<	۵.,	91001003	16/90/90		XIX	20MMAPITM602	•	1.102	1904	1874	<b>2.</b> ,	<b>2</b> E -
20 A M0043	<	<b>~</b>	91001009	06/12/91	91000326	XIX	20MMAPITM602	•	1.147	2021	2065	Δ.	\$
20 A M0044	<	æ	91001010	16/90/90	91000326	SIX	20MMAPITM602	•	1.162	2046	2105	₽.	89
20 A M 004 S	<	۵.	91001043	06/14/91		SIX	20MMAPITM602	0	1.755	2813	2859	۵.	\$
20 A M0046	<	۵,	91001047	06/13/91		XIX	20MMAPITM602	•	1.363	2309	229 <b>8</b>	<u>a.</u>	-11

CSTA-ARL/MD JOIN, EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602
DATABASE MODULE 4: BALLISTIC PERFORMANCE

P = PASSP = PAIL

A = ACCEPTANCE
D = DEVELOPMENT
FA = FIRST ARTICLE
P = PRIMARY
R = RETEST

	TEST	SAMPLE			FAIL				ACT			PASS	VEL
ARL/MD ID	PURPOSE (A/D/FA)	PRIM/RET [P/R]	FIRING RECORD	PIRING	PIRING RECORD	TEST (NUM)	PROJECTILE	OBI (DEG)	PLATE TH	REQ VEL [FT/SEC]	ACT VEL [FT/SEC]	PAIL [P/F]	DIFF [FT/SEC]
20 A M 0047	¥	d.	91001103	06/12/91	 	XIX	20MMAPITM602	•	1.222	2099	2110	<b>a</b>	=
20 A M0048	<	۵.	91001190	06/28/91		SIX	20MMAPITM602	•	1.237	2123	2218	۵,	95
20 A M 0049	<	۵.	91001191	06/28/91		SIX	20MMAPITM602	•	1.759	2818	2931	۵.	113
20AM0050	<	٠.	91001265	07/18/91		XIX	20MMAPITM602	0	1.240	2127	2204	٠.	11
20 A M 005 1	<	۰,	91001278	07/24/91		SIX	20MMAPITM602	•	1.102	1904	1967	<b>2.</b> 1	63
20 A M 0052	< -	<b>a.</b> 1	91001279	07/24/91	,	SIX	20MMAPITM602	•	1.224	2102	2131	<b>2.</b> , i	<b>&amp;</b>
20A M0053	< ⋅	<b>1</b>	91001280	07/29/91	91001003	XIX	20MMAPITM602	<b>-</b>	1.102	1904	2005	، بھ	101
20A M0054	< ⋅	<b>×</b> 1	91001281	07/26/91	91001003	SIX	20MMAPITM602	•	1.100	9061	1995	B., (	\$
20A M0055	< ⋅	۱ بھ	91001286	07/25/91		SIX	20MMAPITM602	•	1.142	1971	202	۰, ۱	103
20 A M 0056	∢ •	ء بھ	91001300	07/29/91		XIX	20MMAPITM602	9 6	1.252	2146	97.77	<b>a.</b> (	2 ;
20AM0057	< ;	٠,	91001330	16/50/80		XIX	20MMAPITM602	-	1.120	1761	1736	<b>3.</b> 1	-219
204 M0058	<b>4</b> 2		91001342	08/19/91		XIX	20MMAPITM602	<b>-</b>	1.218	2093	2293	ء , ہ	<b>2</b> 2
600 M V07	٤.	•	91001343	16/61/90		¥16	700W HILVW MO7	•	1.360	2013	9547	<b>.</b> ,	ç, ;
20 M M 000	< <	L, A	91001344	10/01/91		YIC	20MMAPITM602	-	1.260	2843	2601	<b>L</b> A	- 201
100011100	< <	<u>.</u> a	91001577	10/01/21		< >I	SOM A LI MOS	•	1.761	2000	6706	. 0	711
2000M V02	< <	<b>.</b> A	91001627	10/03/91		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	20MMAPITM602	•	1.190	2067	2136	<b>.</b> , p	1 9
200 MO064	< <	۰, ۵	91001629	10/03/01		XIX	20MMADITM602	•	1 224	2179	2,569	. 0	8
\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	< <	. A	91001630	10/03/91		717 717	200 III WWW CO	•	1 262	2161	7301	. A	2 5
200 M A OC	< <	<u>.</u> A	91001639	10/00/01		415 717	SOM I I MOS	<b>-</b>	1 244	7133	2163	., a	2 5
20 A M 0.067	<	۔ ۵	91001678	10/11/91		XIX	20MMAPITM602	•	1 378	2330	2350	- A	3 8
20 A M0068	: <	. م	91001679	10/11/91		XIX	20MMAPITM602	•	1.278	2185	2279	, A.	3
20 A M 0069	: <	, <u>s.</u> ,	91001756	11/13/91		XIX	20MMAPITM602	•	1.152	1987	1840	, <u>s</u> .	-147
20 A M 0070	<	<b>a</b>	91001759	10/28/91		XIS	20MMAPITM602	•	1.997	3127	3226	۵.	8
20 A M 0071	<	<b>z</b>	91001760	10/18/91		XIX	20MMAPITM602	•	1.224	2102	1887	<b>2.</b>	-215
20 A M 0072	<	۵.	91001807	11/13/91		XIX	20MMAPITM602	•	1.145	1976	2088	<u>م</u>	112
20AM0073	<	۵.	91001833	11/14/91		XIS	20MMAPITM602	•	1.776	2837	2990	۵.	153
20 A M 0074	<	۵.	91001859	11/25/91		SIX	20MMAPITM602	•	1.357	2301	2322	۵.	21
20AM0075	<	<b>L</b>	91001958	12/16/91		SIX	20MMAPITM602	•	1.236	2121	2060	<b>.</b> .	-61
20 A M 0076	< -	، به	91001963	12/13/91		XIS	20MMAPITM602	•	1.590	2612	2678	<b>a.</b> :	3
20AM0077	< ⋅	<b>a</b> ¢ (	910016	12/17/91	91001330	XIX	20MMAPITM602	•	1.107	1955	1924	<b>2.</b> (	-31
20 A M 0078	< •	<b>a</b> , 6	92000002	01/14/92		XIX	20MMAPITM602	•	1.246	2137	2259	<b>a.</b> (	122
6/00WV0Z	< ⋅	<b>.</b> , 6	92000057	01/14/92		XIX	20M MAPIT M602	•	1.367	2315	2400	Dag í	<b>:</b>
20 A MOUSE	< •	<b>L</b> , p	92000026	01/10/92	20010	× ;	20MMAPI1 M602	> <	1.208	27.0	2005	<b>2.</b> 6	? ;
100031 V07	< <	ء د	2200000	26/11/10	770016	¥16	COMMAN I I MOS	•	1.17	6007	2002	<b>L</b> , 1	ጻ ;
200 M 002	< ⋅	<b>×</b> 6	92000061	01/1/92	/2910016	XIX	20MMAPITM602	-	1.1/6	2012	2136	<b>.</b> .	3 8
200 M 002	< ∙	<b>×</b> 1	92000063	01/11/92	91001756	XIX	ZOMIMAPIT M602	•	1.245	2135	2912	<b>2.</b> 1	1.7
20 A M 0084	<	<b>~</b>	92000064	01/17/92	91001756	SIX	20MMAPITM602	•	1.251	2144	2055	œ.	67 -
20 A M 008 S	<	<b>~</b>	92000065	01/17/92	91001756	SIX	20MMAPITM602	0	1.147	1979	2032	۵,	53
20 A M 0086	<	œ	92000069	01/22/92	91001756	XIX	20MMAPITM602	•	1.145	1976	2029	۵	53
20A M0087	<	۵.	92000072	01/22/92		SIX	20MMAPITM602	•	1.242	2130	2273	a.	143
20 A M 0088	<	۵.	92000075	01/28/92		SIX	20MMAPITM602	0	1.134	1957	2032	۵.	27
20 A M 0089	<	۵.	92000249	02/26/92		XIX	20MMAPITM602	•	1.362	2308	2221	<b>2.</b>	-87
20 A M0090	<	<b>~</b>	92000254	02/26/92	92000064	XIX	20MMA TITM602	•	1.253	2147	1712	٠.	<b>54</b>
20 A M0091	<	۵.	92000255	03/03/92		SIX	20MMAPITM602	•	1.152	1987	1972	<b>2</b> .	- 15
20 A M 0092	<	۵.	92000256	03/03/92		SIX	20MMAPITM602	•	1.134	1957	1933	<b>2</b> .	- 24

P = PASS P = PAIL	PASS VEL. FAIL DIFF [P/F] (FT/SEC)	70 70 FF - 104
ij il Da Ch	ACT VEL [FT/SEC]	3059 2667 2048 2109
. 22	REQ VEL [FT/SEC]	3103 2597 2152 2169
A = ACCEPTANCE D = DEVELOPMENT FA = FIRST ARTICLE P = PRIMARY R = RETEST	ACT BL PLATE TH REC	2.014 1.578 1.256 1.228
A = ACCEPTA D = DEVELOP FA = FIRST AF P = PRIMARY R = RETEST	OBL	0000
	PROJECTILE	20MMAPITM602 20MMAPITM602 20MMAPITM602 20MMAPITM602
ТНЕ	TEST	SIX SIX SIX SIX
VEMENT OP MATERIALS NCE	FAIL FIRING RECORD	92000058
CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602 DATABASE MODULE 4: BALLISTIC PERFORMANCE	PIRING DATE	33668 33666 33662 33674
CSTA-ARL/MD JOINT EFFORT FOR THE IMPROY BALLISTIC PERFORMANCE OF ARMOR PLATE M PROJECTILE: 20 MM API-T M602 DATABASE MODULE 4: BALLISTIC PERFORMAN	FIRING	92000257 92000260 92000261 92000288
CSTA-ARL/MD JOINT EFFORT FO BALLISTIC PERFORMANCE OF AR PROJECTILE: 20 MM API-T M602 DATABASE MODULE 4: BALLISTI	SAMPLE PRIM/RET [P/R]	64 64 64 64 64 64
CSTA-ARL BALLISTIC PROJECTILI DATABASE	TEST PURPOSE [A/D/PA]	<<<<
	TEST PURPOSE ARL/MD ID [A/D/FA]	20 A M 00 93 20 A M 00 94 20 A M 00 95 20 A M 00 96

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602
DATABASE MODULE 5: CHEMICAL COMPOSITIONS

	0.5500 0.5600 0.5600 0.5800 0.5800 0.5800 0.5800 0.5800 0.5800 0.5800 0.5800 0.5800 0.5500	1.0500 1.0200 1.0200 1.0300 1.0300 1.0300 1.0300 1.0300 1.0300 1.0300 1.0300 1.0300 1.0200 1.0200 1.0200 1.0200 1.0200 1.0200 1.0200 1.0200 1.0200 1.0200 1.0200	0.4300 0.4300 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500
		0.5600 0.5800 0.5800 0.5800 0.5600 0.5700 0.5700 0.5700 0.5500 0.5500 0.5500	
		0.5800 0.5800 0.5800 0.5700 0.5600 0.5800 0.5700 0.5700 0.5700 0.5500 0.5500 0.5500	
		0.5800 0.5600 0.5600 0.5600 0.5600 0.5800 0.5700 0.5700 0.5700 0.5500 0.5500	
		0.5100 0.5700 0.5800 0.5800 0.5800 0.5700 0.5700 0.5500 0.5500 0.5500 0.5500	
		0.5700 0.5600 0.5600 0.5800 0.5800 0.5700 0.5700 0.5700 0.5700 0.5700 0.5700 0.5700 0.5700 0.5500 0.5500	
		0.5600 0.5800 0.5800 0.5800 0.5800 0.5700 0.5700 0.5500 0.5500 0.5500 0.5500	
0.5600 0.0030		0.5600 0.5800 0.5800 0.5700 0.6300 0.5700 0.5600 0.5500 0.5500 0.5500	
0.5900		0.5500 0.5500 0.6300 0.6300 0.5700 0.5500 0.5500 0.5500	
0.5700		0.5800 0.6800 0.6800 0.5700 0.5700 0.5800 0.5500 0.5500	
0.5 / 00		0.5700 0.6300 0.5700 0.5700 0.5500 0.5500 0.5500	
0.5700		0.5500 0.5700 0.5700 0.5800 0.5500 0.5500 0.5500	
		0.5700 0.5700 0.5800 0.5800 0.5800 0.5800	
0.0040		0.5700 0.5600 0.5500 0.5500 0.5500 0.5500	
		0.5600 0.5500 0.5500 0.5500 0.5500	
0.5900		0.5500 0.5500 0.5500 0.5500	
0.5500		0.5500 0.5500 0.5500	
0.5600		0.5500 0.5400	
0.5300		0.5400	
0.5500 0.0020		1 1 1	8
		0.6400	6
		0.6500	3
0.4100		0.6500	
0.5800		0.5500	0.5500 0.5500
0.5500		0.5500	
		0.5400	
		0.6500	
0.3200 0.0025		0.6300	
		0.5800	2 2
0.5700 0.0030		0.5600	1.0100 0.5600
0.5700		0000	
		0.6500	1 0100 0 5500
0.3960		00000	
0.5400		00000	3 5
0.00.0		0 2000	
400			
		00330	2
		0.5500	
		0.5500	
0.0050		0.5700	
0.4200 0.0003		0.099.0	1.1900 0.6600

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602
DATABASE MODULE 5: CHEMICAL COMPOSITIONS

20A M0001 20A M0002 20A M0003 20A M0004 20A M0005 20A M0008 20A M0010 20A M0011 20A M0011 20A M0015 20A M0016 20A M0016 20A M0015 20A M0016 20A M0018 20A M0018 20A M0018	0.0030 0.0030 0.0030 0.0030 0.0030 0.0410 0.0030 0.0030	0.0030 0.0020 0.0020	0.0050 0.0060 0.0060 0.0050 0.0050	0.0120 0.0100 0.0100 0.0120	0.0030 0.0030 0.0030 0.0030	0.0074	0.0020	0.3000	0.0060	3
20 A M 000 2 20 A M 000 3 20 A M 000 4 20 A M 000 6 20 A M 000 10 20 A M 00 10 20 A M 00 11 20 A M 00 15 20 A M 00 12 20 A M 00 12 20 A M 00 20 20 A	0.0030 0.0030 0.0030 0.0030 0.0410 0.0030 0.0030	0.0030	0.0050 0.0060 0.0060 0.0050 0.0050	0.0120 0.0100 0.0100 0.0120	0.0030 0.0030 0.0030 0.0030	0.0074	0.0020	0.3000	0.0060	9
20AM0004 20AM0004 20AM0005 20AM0005 20AM00010 20AM0011 20AM0011 20AM0011 20AM0015 20AM0016 20AM0017 20AM0017 20AM0020 20AM0020 20AM0020 20AM0020 20AM0020 20AM0020	0.0030 0.0030 0.0030 0.0030 0.0410 0.7430 0.0030 0.0030	0.0030	0.0050 0.0060 0.0050 0.0050	0.0120 0.0100 0.0100 0.0120	0.0030 0.0030 0.0030 0.0030	0.0074	0.0020	0.3000	0.0060	9000
20A M0005 20A M0005 20A M0006 20A M0009 20A M0010 20A M0010 20A M0010 20A M0010 20A M0016 20A M0017 20A M0	0.0030 0.0030 0.0030 0.0030 0.0410 0.0430 0.0030 0.0030	0.0030	0.0060 0.0060 0.0050 0.0050	0.0120 0.0100 0.0100 0.0120	0.0030 0.0030 0.0030 0.0030	0.0064	0.000	2000		
20 A M0006 20 A M0007 20 A M0007 20 A M0010 20 A M0011 20 A M0011 20 A M0013 20 A M0018 20 A M0018 20 A M0018 20 A M0018 20 A M0012 20 A M0012 20 A M0012 20 A M0012 20 A M0022 20 A M0023	0.0030 0.0030 0.0030 0.0030 0.0410 0.7030 0.0030 0.0030	0.0030	0.0060 0.0060 0.0050 0.0050	0.0120 0.0100 0.0100 0.0120	0.0030 0.0030 0.0030 0.0030	0.0064				
20 A M 0007 20 A M 0008 20 A M 0010 20 A M 0011 20 A M 0013 20 A M 0014 20 A M 0015 20 A M 0017 20 A M 0017 20 A M 0018 20 A M 0018 20 A M 0021 20 A M 0023	0.0030 0.0030 0.0030 0.0030 0.0410 0.0430 0.0030 0.0030	0.0030	0.0060 0.0060 0.0050 0.0050	0.0120 0.0100 0.0100 0.0120	0.0030 0.0030 0.0030 0.0030	0.0064				
20AM0008 20AM0010 20AM0010 20AM0011 20AM0013 20AM0015 20AM0016 20AM0018 20AM0020	0.0030 0.0030 0.0030 0.0030 0.0410 0.0030 0.0030	0.0020	0.0060 0.0050 0.0050 0.0050	0.0100 0.0100 0.0120	0.0030 0.0030 0.0020	0.0064				
20 A M 0009 20 A M 0010 20 A M 0011 20 A M 0013 20 A M 0015 20 A M 0015 20 A M 0017 20 A M 0017 20 A M 0020 20 A M 0021 20 A M 0022 20 A M 0023 20 A M 0023	0.0030 0.0030 0.0030 0.0410 0.0430 0.0030	0.0020	0.0050 0.0050 0.0050 0.0050	0.0100 0.0100 0.0120	0.0030 0.0030 0.0020	0.0064				
20 A M 00 10 20 A M 00 11 20 A M 00 13 20 A M 00 14 20 A M 00 15 20 A M 00 17 20 A M 00 17 20 A M 00 20 20 A	0.0030 0.0030 0.0030 0.0410 0.0430 0.0030	0.0020	0.0060 0.0050 0.0050	0.0100 0.0100 0.0120	0.0030 0.0030 0.0020	0.0064				
20 A M 0011 20 A M 0012 20 A M 0013 20 A M 0014 20 A M 0015 20 A M 0018 20 A M 0021 20 A M 0021 20 A M 0022 20 A M 0023	0.0030 0.0030 0.0030 0.0410 0.0030 0.0030	0.0020	0.0050 0.0050 0.0050	0.0100 0.0100 0.0120	0.0030 0.0030 0.0020		0.0010	0.4000	0.0040	0.0140
20A M0012 20A M0013 20A M0014 20A M0015 20A M0015 20A M0017 20A M0019 20A M0020 20A M0021 20A M0022	0.0030 0.0030 0.0030 0.0410 0.0030 0.0030	0.0020	0.0050 0.0050 0.0050	0.0100 0.0100 0.0120	0.0030 0.0030 0.0020					
20A M0013 20A M0014 20A M0015 20A M0016 20A M0017 20A M0019 20A M0021 20A M0022 20A M0023	0.0030 0.0030 0.0410 0.0030 0.0030	0.0020	0.0050	0.0100	0.0030					
20AM0014 20AM0015 20AM0017 20AM0017 20AM0019 20AM0020 20AM0021 20AM0023	0.0030 0.0410 0.0030 0.0030 0.0030	0.0020	0.0050	0.0120	0.0020					
20A M0015 20A M0016 20A M0017 20A M0018 20A M0020 20A M0021 20A M0022 20A M0023	0.0410 0.0030 0.0030 0.0030									
20A M0016 20A M0017 20A M0018 20A M0020 20A M0021 20A M0022 20A M0023	0.7030 0.0030 0.0030 0.0030									
20A M0017 20A M0018 20A M0019 20A M0020 20A M0021 20A M0023	0.0030 0.0030 0.0030	6								
20A M0018 20A M0019 20A M0020 20A M0021 20A M0023	0.0030	6	0.0050			0.0074	0.0020	0.3000	0.0060	0.0190
20 A M 00 19 20 A M 00 20 20 A M 00 21 20 A M 00 22 20 A M 00 23	0.0030	0000	0.0050			0.0074	0.0020	0.3000	0.0060	0.0190
20A M0020 20A M0021 20A M0022 20A M0023	0.0030	0700.0	0.0060	0.0140	0.0030					
20 A M 002 1 20 A M 002 2 20 A M 002 3	0.0030									
20 A M 00 2 2 20 A M 00 2 3 20 A M 00 2 3		0.0030	0.0060	0.0110	0.0030					
20 A M 0 0 2 3										
TO A MOOD	0.0030	0.0020	0.0050	0.0000						
1731W V07	0.0030		0.0040			0.0068	0.0010	0.6000	0.0010	0.0100
20 A M 0025										
20 A M 0026										
20 A M 0027										
204 M0028										
20 A M 0029	0.0020	0.0020	0.0050	0.0140	0.0030					
20 A M 0030	0.0030	0.0020	0.0050	0.0010						
20 A M 003 1										
20AM0032										
20A M 0033										
20 A M 0034	0.0030	0.0030	0.0060	0.0080	0.0030					
20 A M 003 S	0.0030		0.0040							
20 A M 0036										
20 A M 0037										
20 A M 0038	0.0030	0.0020	0.0060	0.0140	0.0030					
20 A M 0039	0.0290	0.0020	0.0050	0.0000	0.0030					
20 A M 0040	0.0030	0.0030	0900.0	0.0110	0.0030					
20 A M 004 1	0.0040	0.0020	0.0050	0.0070	0.0030					
20 A M 0042	0.0330	0.0020	0.0050	0.0000	0.0030					
20 A M 0043	0.0030		0.0030							
20 A M0044	0.0030		0.0030							
20 A M 004 S										
20 A M 0046										

CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602 DATABASE MODULE 5: CHEMICAL COMPOSITIONS

	ပ	M	SI	ï	CR	MO.	>	æ	CO	۵.	w	ZR	٧٢
ARL/MD ID	[WT%]												
20 A M 0047	0.2900	0.8400	0.4300	0.9400	0.5000	0.5400			0.1200	0.0080	0.0030	0.0040	0.0370
20 A M 0048	0.3000	1.0800	0.3900	1.1900	0.6200	0.4100		0.0004		0.0090	0.0080		0.0290
20 A M 0049	0.3100	0.9100	0.4700	1.1900	0.6100	0.5500		1		0.0100	0.0010	0.0020	,
20 A M 0050	0.3000	1.1100	0.4100	1.1700	0.6500	0.4000		0.0003		0.0060	0.0030		0.0290
20AM0051	0.3100	0.9200	0.4900	1.1700	0.6100	0.5600	0.0050	0.0005	0.1700	0.0110	0.0020	0.0030	0.0320
20AM0052	0.3100	0.9200	0.4900	1.1700	0.6100	0.5600	0.0050	0.0003	0.1700	0.0110	0.0020	0.0030	0.0320
20AM0053	0.3100	0.9000	0.4400	0.9600	0.5500	0.5800	0.0050	0.000	0.1400	0.0120	0.0020	0.0020	0.0160
20AM0054	0.3100	0.9000	0.4400	0.9600	0.5500	0.5800	0.0050	0.000	0.1400	0.0120	0.0020	0.0020	0.0160
20 A M 005 5	0.3000	1.5300	0.2300			0.5400		0.0007		0.0000	0.0040		
20AM0056	0.2800	0.8600	0.4100	0.9500	0.5100	0.5500	0.0030	0.0003	0.1600	0.0100	0.0010	0.0030	0.0290
20 A M 0057	0.3200	1.0700	0.3900	1.2100	0.6400	0.4000				0.0010	0.0040		0.0220
20AM0058	0.3200	1.0900	0.4100	1.1900	0.6600	0.4200		0.0003	0.1500	0.0110	0.0020		0.0210
20AM0059	0.3200	1.0900	0.4100	1.1900	0.6600	0.4200		0.0003	0.1500	0.0110	0.0020		0.0210
20 A M 0060	0.3200	1.1200	0.4100	1.2500	0.6600	0.3800		0.0004	0.0600	0.0000	0.0060		0.0520
20 A M 0061	0.3200	0.9100	0.4100	1.0200	0.5500	0.5500	0.0030	0.0003		0.0070	0.0010	0.0030	
20 A M 0062	0.3100	0.9100	0.4300	0.8900	0.5000	0.5500	0.0030		0.1500	0.0100	0.0020		0.0270
20 A M 0063	0.3200	0.9100	0.4100	1.0200	0.5500	0.5500	0.0030		0.1100	0.0070	0.0010		0.0410
20 A M 0064	0.3100	0.9000	0.4400	0.8800	0.5000	0.5500			0.1500	0.0100	0.0020	0.0030	0.0280
20 A M 0065	0.3200	1.1100	0.4000	1.2500	0.6500	0.4100		0.0005		0.0100	0.0020		0.0160
20 A M 0066	0.3000	1.0600	0.4000	1.1900	0.6500	0.4000		0.0005		0.0080	0.0010		0.0250
20 A M 0067	0.3100	0.9100	0.4500	1.0500	0.5600	0.5500	0.0060		0.1900	0.0130	0.0030	0.0030	0.0300
20 A M0068	0.3100	0.9100	0.4500	1.0500	0.5600	0.5500	0.0060		0.1900	0.0130	0.0030	0.0030	0.0300
20 A M 0069	0.3200	0.8900	0.4600	1.0300	0.5500	0.5500	0.0030	0.0004	0.1400	0.0100	0.0010	0.0030	0.0440
20 A M 0070	0.3100	0.9200	0.4900	1.1700	0.6100	0.5600	0.0050		0.1700	0.0110	0.0020		0.0320
20 A M 0071	0.3200	1.1200	0.4100	1.2500	0.6600	0.3800		0.0004	0.0600	0.0090	0.0060		0.0520
20AM0072	0.3100	0.9000	0.4400	0.8800	0.5000	0.5500	0.0030	0.0004	0.1500	0.0100	0.0020	0.0030	0.0280
20AM0073	0.3200	0.9000	0.4200	1.0100	0.5600	0.5500	0.0030	0.0011		0.0000	0.0020	0.0040	
20AM0074	0.3200	1.1200	0.4000	1.1600	0.0650	0.4300	0.0030	0.0012	0.1400	0.000	0.000		0.0310
20AM0075	0.3200	0.8900	0.4600	1.0300	0.5500	0.5500	0.0030		0.1400	0.0100	0.0010	0.0030	0.0440
20AM0076	0.3200	0.8900	0.4600	1.0300	0.5500	0.5500	0.0030		0.1400	0.0100	0.0010	0.0030	0.0440
20 A M 0077	0.3200	1.0700	0.3900	1.2100	0.6400	0.4000	,		:	0.0010	0.0040		0.0220
20 A M 0078	0.2900	0.8800	0.4300	0.9400	0.5400	0.5600	0.0030		0.1700	0.0150	0.0020	0.0040	0.0380
20 A M 0079	0.3000	1.0600	0.4000	1.1900	0.6500	0.4000		0.0003	0.1400	0.0000	0.0010		0.0250
20 A M 0080	0.3100	0.8700	0.4300	1.0100	0.5500	0.5300	0.0040		0.1400	0.0000	0.0020	0.0030	0.0300
20 A M 008 1	0.3100	0.9100	0.4300	0.8900	0.5000	0.5500	0.0030		0.1500	0.0100	0.0020		0.0270
20 A M 008 2	0.3100	0.9100	0.4300	0.8900	0.5000	0.5500	0.0030		0.1500	0.0100	0.0020	,	0.0270
20AM0083	0.3200	0.8900	0.4600	1.0300	0.5500	0.5500	0.0030		0.1400	0.0100	0.0010	0.0030	0.0440
20 M 0084	0.3200	0.8900	0.4600	1.0300	0.5500	0.5500	0.0030		0.1400	0.0100	0.0010	0.0030	0.0440
20 A M 008 S	0.3200	0.8900	0.4600	1.0300	0.5500	0.5500	0.0030	0.0004	0.1400	0.0100	0.0010	0.0030	0.0440
20 A M 0086	0.3200	0.8900	0.4600	1.0300	0.5500	0.5500	0.0030	0.0004	0.1400	0.0100	0.0010	0.0030	0.0440
20 A M 0087	0.3100	1.0800	0.4100	1.2200	0.6400	0.3800		0.0005		0.0060	0.0060		0.0110
20 A M 0088	0.3100	0.9100	0.4200	1.0500	0.5600	0.5500	0.0060		0.1900	0.0120	0.0030	0.0030	0.0300
20 A M 0089	0.3100	1000	0.4100	1.1800	0.6500	0.4100		0.0004	0.1400	0900.0	0.0020		0.0230
20 A M0090	0.3200	0068∵	0.460)	1.0300	0.5500	0.5500	0.0030	0.0004	0.1400	0.0100	0.0010	0.0030	0.0440
20 A M 009 1	0.3000	0.8800	0.4500	0.9000	0.4900	0.5300	0.0020	0.0003	0.1300	0.0080	0.0020	0.0010	0.0340
20A M0092	0.2900	0.8800	0.4300	0096.0	0.5400	0.5600	0.0030	0.0003	0.1700	0.0150	0.0020	0.0040	0.0380

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602
DATABASE MODULE 5: CHEMICAL COMPOSITIONS

		[*L*]	[WT%]	[WT%]	[WT%]	[WT%]	[WT%]	[WT%]	[ <b>%</b> 1 <b>%</b> ]	[*]*
20 A M 0047	0.0290	0.0020	0.0050	0.0090	0.0030	 	1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
20 A M0048										
20 A MO050										
20 A M 0051	0.0050	0.0030	0.0070	0.0100	0.0030					
20AM0052	0.0050	0.0030	0.0010	0.0100	0.0030					
20AM0053	0.0020	0.0020	0.0050	0.0140	0.0030					
20AM0054	0.0020	0.0020	0.0050	0.0140	0.0030					
20 A M 0055										
20AM0056	0.0030	0.0020	0.0060	0.0130	0.0030					
20AM0057										
20AM0058										
20 A M 00 59										
20 A M 0060										
20 A M0061										
20 A M0062	0.0040		0.0050			9500 0	0.0030	0.2000	0.0010	0.0100
20 A M0063	0.0040		0.0040			0.0059	0.0020			
20 A MODE	9000	0.000	9000	0000	0.000					
20 A MOOK S				2000	2000					
200 M A00										
	0.000	0000	9000	00.0	0000					
/900W Vn2	0.0030	0.0020	0.000	0.0100	0.0020					
20 A M0068	0.0030	0.0020	0.0000	0.0100	0.0020					
20 A M 0069	0.0040	0.0020	0.0050	0.0010	0.0020					
20 A M 0070	0.0050		0.0010							•
20 A M 0071										
20AM0072	0.0040	0.0030	0900.0	0.0000	0.0030					
20 A M 0073									•	
20 A M 0074									•	
20 A M 007 S	0.0040	0.0020	0.0050	0.0070	0.0020					
20 A M 0076	0.0040	0.0020	0.0050	0.0070	0.0020					
20 A M 0077										
20 A M 0078	0.0030	0.0010	0.0060	0.0140	0.0020					
20 A M 0079										
20 A M 0080	0.0020	0.0020	0.0040	0.0120						
20 A M0081	0.0040		0.0050			0.0056	0.0030	0.2000	0.0010	0.0100
20 A M0087	0 0040		0.000			0 0056	0.0030			
20 A MOOR2	9000	0000	9000	0.000	0000					
		0.0020	959.0	9000	0.0020					
20 M 0024	0.0040	0.0020	0.0030	0.00.0	0.0020					
20 A M 008 5	0.0040	0.0020	0.0050	0.0010	0.0020					
20 A M 0086	0.0040	0.0020	0.0050	0.0010	0.0020					
20 M M 0087										
20 A M 0088	0.0030	0.0020	0.0060	0.0100	0.0020					
20 A M 0089										
20 A M0090	0.0040	0.0020	0.0050	0.0070	0.0020					
20 A M 009 1	0.000	00000	03000	00.00	00000					
		25.5		0.0120	0.0030					

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CSTA-ARL/MD JOINT EFFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602
DATABASE MODULE 5: CHEMICAL COMPOSITIONS

AL [WT%]	0.0290
ZR [WT%]	0.0030 0.0030 0.0030
S [WT%]	0.0010 0.0020 0.0020 0.0040
P [WT%]	0.0100 0.0120 0.00 <b>6</b> 0 0.00120
cu [WT%]	0.1600 0.1400 0.1400
B [WT%]	0.0003 0.0008 0.0004 0.0010
v [wT%]	0.0030 0.0050 0.0040 0.0030
MO [WT%]	0.5500 0.5800 0.5300 0.5300
CR [WT%]	0.5000 0.5500 0.5500 0.5500
NI [WT%]	0.9500 0.9600 1.0100 0.9900
SI [WT%]	0.4100 0.4400 0.4300 0.4300
MN (%1/8)	0.8600 0.9000 0.8700 0.8400
C [WT%]	0.2800 0.3100 0.3100 0.3000
C MN SI NI ARL/MDID [WT%] [WT%] [WT%]	20A M0093 20A M0094 20A M0095 20A M0096

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CSTA-ARL/MD JOINT EPFORT FOR THE IMPROVEMENT OF THE BALLISTIC PERFORMANCE OF ARMOR PLATE MATERIALS PROJECTILE: 20 MM API-T M602
DATABASE MODULE 5: CHEMICAL COMPOSITIONS

ĕi	TI (RL/MD ID (WT%)	SB [WT%]	AS [WT%]	WT%]	PB [WT%]	N WTW]	(WT%)	H [WT%]	CB [WT%]	SB AS SN PB N O H CB CO [WT%] [WT%] [WT%] [WT%] [WT%] [WT%] [WT%]
	0.0030 0.0020 0.0020 0.0030	0.8620 0.0020 0.0020 0.0030	0.0050 0.0050 0.0040 0.0050	0.0130 0.0140 0.0120 0.0100	0.0030 0.0030 0.0040 0.0050					

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